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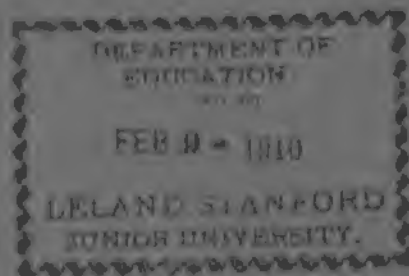


LELAND STANFORD JUNIOR UNIVERSITY

1908

TRUSTEES' SERIES

No. 17



FIFTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1908

STANFORD UNIVERSITY, CALIFORNIA
PUBLISHED BY THE UNIVERSITY

1908

LELAND STANFORD JUNIOR UNIVERSITY

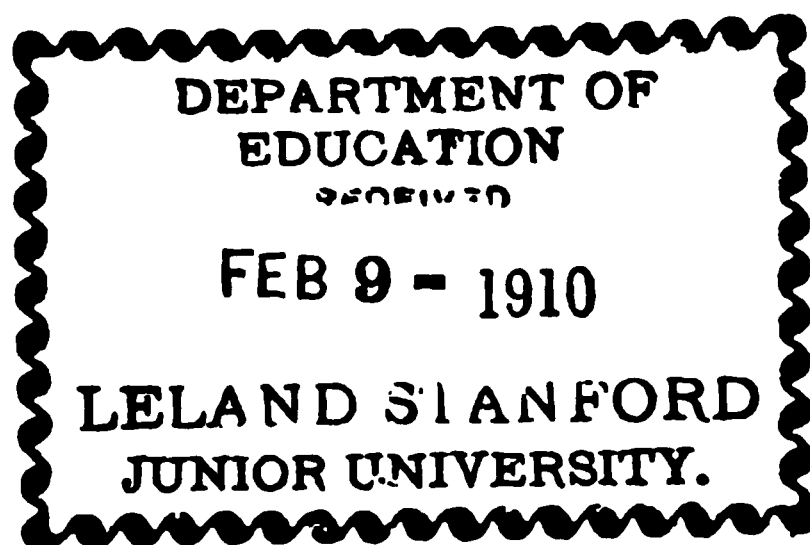
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No.		Date.
1.	The Leland Stanford Junior University. A pamphlet of information.....	(No date.)
2.	Address of Jane Lathrop Stanford to the Board of Trustees.....	February 11, 1897
3.	Address of Jane Lathrop Stanford to the Board of Trustees.....	June 1, 1897
4.	Address of Jane Lathrop Stanford to the Board of Trustees.....	May 31, 1899
5.	Address of Jane Lathrop Stanford to the Board of Trustees.....	October 3, 1902
6.	Address on "The Right of Free Speech," by Jane Lathrop Stanford to the Board of Trustees....	April 25, 1903
7.	Petition filed in proceedings to establish and construe University Trusts.....	June 16, 1903
8.	Decree in proceeding to establish and construe University Trusts.....	July 3, 1903
9.	Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
10.	Organization of the Faculty of the University....	March 31, 1904
11.	Report of the Organization Committee of the Trustees upon the Organization of the University Faculty.....	March 31, 1904
12.	First Annual Report of the President.....	December 31, 1905
13.	Second Annual Report of the President.....	April 30, 1906
14.	Third Annual Report of the President.....	December 31, 1906
15.	Fourth Annual Report of the President.....	December 31, 1907
16.	Trustees' Manual.....	November 1, 1908
17.	Fifth Annual Report of the President.....	December 31, 1908

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REPORT OF THE PRESIDENT

*To the Honorable Board of Trustees,
Leland Stanford Junior University.*

GENTLEMEN:

I have the honor to present the following report, as President of the Leland Stanford Junior University, for the academic year ending July 31, 1908.

In general, the work of the year has been fairly satisfactory. The reconstruction of the buildings damaged by the earthquake of 1906 has gone on under the direction of the Engineering Commission of the Faculty,—Professors Marx, Durand and Wing,—without interruption.

At the end of this year, all injuries have been repaired except those to the church, to the unfinished library and gymnasium, and to the museum. The library and gymnasium, being completely wrecked, will not be restored. It is understood that the restoration of the church may proceed without delay. All walls of the University buildings not fairly to be called earthquake proof are now replaced by those which should resist any disturbance yet known on the San Francisco peninsula. these being backed everywhere by reinforced concrete.

**Work of
Recon-
struction**

The chief incident of the year may be briefly noticed. The annual football game with the University of California, in November, was followed by a series of student celebrations and parades, in which the misuse or over-use of beer was without precedent in the history of the institution. These irregularities, largely centering about a resort in the village of Menlo Park, although abated somewhat by public senti-

ment among students and citizens, came to a final end with the death of a student, who, returning home from Menlo Park under the influence of liquor, entered the wrong house, and was shot as a burglar. A committee of the Faculty appointed for the purpose of dealing with this matter was received in rebellious spirit by a part of the student body. Among these were some whose attitude in the matter of drink was above reproach, but in whom the spirit of independence outran the feeling of responsibility. A "parade of protest" on their part invaded at night, in riotous fashion, the premises of the chairman of the Faculty Committee, Professor Arthur B. Clark, and afterwards in similar spirit marched through the University library. As a result of this affair, forty-one juniors and seniors, connected with the "parade," were suspended for the rest of the semester, and eighty of the lower classmen were given additional hours to be completed before graduation. Further rebellious spirit was shown, especially among students having access to the newspapers as correspondents, but the general attitude of the student body rapidly changed into acquiescence and final approval of the stand taken by the Faculty in the matter of temperance and orderly conduct.

The Committee on Student Affairs in charge of these adjustments consisted of Associate Professors Arthur B. Clark, George C. Price, Albert C. Whitaker, Arthur M. Cathcart and Robert E. Swain. I can not speak in too high terms of the courage, fidelity and intelligence with which the members of this committee met their complex and trying task.

At the opening of the present year, the entire attitude of the student body was to all appearances wholly satisfactory. Each one of the fraternities has forbidden the use of all forms of alcoholic beverages in its chapter house, and no evidence of drunkenness or the visiting of disorderly resorts has so far come to the attention of the Faculty. The general soundness of the student body at Stanford could receive no higher testimonial.

The total attendance for the year 1907-8 was 1738, an increase over the attendance of the previous year, which was 1668. This indicates that the slight falling off in the attendance of Eastern students following the earthquake of 1906, has now ceased. There was in 1906-7 some evidence of an increase in the number of students whose chief interest centered in social or athletic affairs, the increased number of those sent away for delinquent scholarship being one evidence of this. The new year 1908-9 begins with an attendance smaller by about fifty than that present at the corresponding date of last year, but the first tests of scholarship of the year have shown a smaller number of failures than appear in the record of any previous year.

**Attendance
of
Students**

The following is an analysis of the student body for 1907-8:

BY DEPARTMENTS.

	Graduate	Under Graduate	Special	Total
Greek	3	16	..	19
Latin	11	43	..	54
Germanic Languages.....	10	81	1	92
Romanic Languages.....	..	18	2	20
English	13	157	7	177
Psychology	1	3	..	4
Philosophy	2	..	..	2
Education	4	20	2	26
History	16	124	3	143
Economics and Social Science..	3	118	10	131
Law	26	251	18	295
Drawing	2	28	1	31
Mathematics	4	29	1	34
Physics	3	9	1	13
Chemistry	5	76	2	83
Botany	2	28	1	31
Physiology and Histology.....	4	46	3	53
Zoology	3	22	3	28
Entomology	3	7	1	11
Geology and Mining.....	5	106	12	123
Civil Engineering	1	166	18	185
Mechanical Engineering.....	..	62	4	66
Electrical Engineering	5	103	9	117

BY RESIDENCE

California	1438	China	3
Washington	41	District of Columbia.....	3
Oregon	38	Michigan	3
Illinois	16	South Dakota.....	3
Arizona	14	Tennessee	3
Colorado	13	Texas	3
New York	13	Connecticut	2
Utah	12	Kentucky	2
Indiana	10	Maryland	2
Iowa	10	New Jersey	2
Hawaii	9	New Mexico	2
Japan	9	Arkansas	1
Montana	9	Australia	1
Nebraska	8	Bermuda Islands.....	1
Nevada	8	Italy	1
Ohio	8	Maine	1
Kansas	6	Mexico	1
Minnesota	6	Mississippi	1
Missouri	6	New Hampshire	1
Pennsylvania	6	North Carolina	1
Idaho	5	Switzerland	1
Massachusetts	5	Vermont	1
Wisconsin	5	Wyoming	1
Canada	3		

This year the President's conferences of students, as established in 1906, have been left in abeyance, and two differently constituted bodies of students have been organized for purposes of consultation with the President and other executive officers and with committees. Formerly the members of the President's conference of men and that of women were chosen by the different fraternities and sororities, and by the bodies representing the various student activities. For this year the University conference of men has been made up of upper classmen, of high standing in scholarship, chosen by the different departments of the University from their lists of major students. The President's conference of women, also limited to the upper classes and to students of high rank, is made up of the advisory board

of the Woman's League, with other representatives, constituting the number of fifteen, chosen by these. The following is a list of the members of each conference:

PRESIDENT'S CONFERENCE OF MEN

J. O. Gossett	H. S. Hunter
P. A. Ross	F. H. Ashley
A. E. Roth	H. F. Henderson
W. C. Shelton	M. R. Kirkwood
H. R. Stolz	J. E. Stewart
W. C. North	J. M. Miller
L. J. Hart	E. W. Rice
C. S. Morris	W. H. Oschner
H. V. Poor	J. G. Bailie
J. I. Thompson	John S. Hess
F. W. Weymouth	Y. Ichihashi
J. F. Pruett	

PRESIDENT'S CONFERENCE OF WOMEN

Ethel Palmer	Elsie Branner
Roberta Roberts	Jessie Morgan
Helen Starr	Fay McKinley
Beatrice Maine	Stella McAllister
Aurania Ellerbeck	Marguerite Hyatt
Alice Shinn	Lilo McMillan
Constance Edwards	Florence Forbes
Elizabeth Buckingham	Lucia Mirrielees
Carolyn Van Epps	

The Fraternity and Scholarship

The fraternities at Stanford University are now sixteen in number, as follows:

Acacia	Phi Gamma Delta
Beta Theta Pi	Phi Delta Theta
Chi Psi	Phi Kappa Psi
Delta Kappa Epsilon	Sigma Alpha Epsilon
Delta Tau Delta	Sigma Chi
Delta Upsilon	Sigma Nu
Kappa Alpha	Theta Delta Chi
Kappa Sigma	Zeta Psi

All of these occupy chapter houses on the campus, most of them owned by the chapters or alumni organizations.

There are also six sororities, each of them occupying a chapter house, the houses being in most cases the property of the chapter. These sororities are the following:

Alpha Phi
Delta Gamma
Gamma Phi Beta

Kappa Alpha Theta
Kappa Kappa Gamma
Pi Beta Phi

The advantages of life in a fraternity or sorority chapter house are considerable. Among these are close and friendly association, experience in managing affairs, the life-long friendship with members of the same group. With these advantages are associated certain evils. Among these are clan-nishness, occasional lavish expenditure, and sometimes the enforced association with undesirable persons. Members of the same group tend to rise or fall to the same level. In some of these groups, there is at times a lack of seriousness, a lack of refinement, a lack of ideals in scholarship or in life. In some cases the student is likely to waste much time in trivial talk and idle chaffing, even if the grosser evils of dissipation are absent. Statistics show that for the last seven years the average of scholarship within the fraternities is lower than that of the young men composing the student body as a whole. This has not been true of all the fraternities, nor for all the time with most of them. The downward tendency, however, exists, and must be considered as a factor in University management.

For this the remedy lies in bringing in better men, and especially in making membership in a fraternity an honor. At present, on the entrance of a new freshman class, those members of the class considered desirable fraternity men are eagerly solicited by the men of the fraternities. Very little is known of these men, and some of them prove to be far from desirable as associates. In any event, no fraternity can retain high ideals while choosing members who have shown no relation to these ideals. A better plan would be to choose

no one who has not passed a successful year, or at least a successful semester in the University.

Another important advance in fraternity life would be the general adoption of the custom of maintaining "house-mothers." In the early days of the University nearly every fraternity had a house-mother, a mother or sister of some one of the fraternity, resident in the chapter house. The presence of a cultured woman ensures the absence of coarse speech, of careless dress, and at least of many of the smaller vices. A few fraternities have regularly maintained house-mothers in the chapter houses, as have all of the sororities.

As a select or chosen body, the scholarship of the fraternities should rank above the average. On the other hand, as life in the chapter house is more expensive than in private lodgings, the fraternities have a smaller number of those whose education is gained through personal sacrifice. This means on the average a lower sense of the value of time. Among the sororities the general average has not varied much from the record of the young women in general. With the young women there are fewer distractions, and there is as well a greater willingness to do college work as it should be done and when it is due.

Since the attention of the fraternities has been called to these matters, considerable progress has been already made toward their betterment. Still more definite results will doubtless appear from the work of the "Students' Adviser," for which provision has been made.

In relation to the proposed separation of the Junior College at Stanford University, I would make the following recommendations:

**The
Junior
College**

1. That on and after August 1, 1910, in addition to the present entrance requirements, two years, or sixty units, of collegiate work, the equivalent of the requirements for the degree or title of "Associate in Arts," as granted in the University of Chicago, shall be required for entrance to the University;

2. That the work of the present first and second years be regarded as preparatory to the University, and that the work of these years be designated collectively as the Junior College; and that on the completion of this work, a student shall receive a certificate which shall entitle him to matriculate as a University student in some one of the University departments or schools.

I recommend further that as soon as the work of the Junior College is effectively carried on in California by other agencies, this work shall be no longer given at the University, the date of May, 1914, being taken as a possible date on which such change may take place.

Provision should also be made to examine any and all colleges and secondary schools on the Pacific Coast which may desire to offer this Junior College work, with a view to acceptance on certificate of their students. Such a request has already been received from the Polytechnic High School at Los Angeles, and others will doubtless be prepared as soon as the University shall adopt a definite policy in this regard.

A further increase of salaries was made in the past year. This consisted, among other things, in the addition of \$250 each to the salaries of several professors, and of \$100 each to the salaries of the associate and assistant professors generally, and of many of the instructors.

**Salaries
and
Faculty
Changes**

In the faculty of instruction the following changes took effect at the close of the year:

In Greek, Associate Professor Henry W. Rolfe resumes work after a year's sabbatical leave.

In Latin, Assistant Professor Ernest W. Martin is absent on sabbatical leave.

In Romanic Languages, Assistant Professor Colbert Searles returns from sabbatical leave, replacing Mr. Homer P. Earle, temporarily employed as instructor. Mr. Henry Bluestone, a graduate student, late teacher of modern languages in the State College of Washington, is appointed as acting instructor in French.

In German, Assistant Professor Karl G. Rendtorff returns from sabbatical leave, and Assistant Professor William A. Cooper will be absent on such leave for the year. Dr. George H. Danton remaining as acting assistant professor.

In English, Assistant Professors Raymond M. Alden and Lee E. Bassett return from sabbatical leave. Mr. John K. Bonnell resumes work as instructor, replacing Miss Catherine L. Fields. Mr. Bonnell is a graduate of Stanford, class of 1903, and has spent several years in study in Europe.

Mrs. Evelyn Wright Allan, a graduate of Stanford from the department of English, with the class of 1896, has been appointed Dean of Women, with certain class work in English Literature. Since graduation, Mrs. Allan has been teacher of English in the Brooklyn Manual Training High School, and secretary of the High School Teachers' Association of New York.

In Education, Assistant Professor Henry Suzzallo has resigned to accept a professorship of Education in Teachers' College, New York City. His place has been filled by the appointment as professor of Dr. John Andrew Bergström of the University of Indiana. Dr. Bergström holds the degree of Doctor of Philosophy from Clark University, and has been for six years professor of education in the University of Indiana. He will take up his work at Stanford with the beginning of the second semester.

Mr. Percy E. Davidson, formerly acting assistant professor, has been granted a regular appointment in the department.

In History, Professor Max Farrand has resigned to accept the chair of American History at Yale University. Professor Ephraim D. Adams now becomes executive head of the department. Associate Professor Clyde A. Duniway was promoted to the rank of Professor of American History. He has resigned to accept the presidency of the University of Montana, at Missoula, into which position he was inaugurated on October 5, 1908. Professor Arley B. Show remains absent for study in Europe. To fill these vacancies, the following temporary appointments have been made for the current year:

Dr. Sedley L. Ware, to be instructor in Mediaeval History; and Dr. John H. Blair, to be instructor in American History. Instructor Ware holds the Ph. D. degree from Johns Hopkins, and Instructor Blair from Harvard. Dr. Percy A. Martin has been made instructor in modern European History. Instructor Martin is a graduate of Stanford with the class of 1902, and holds the Doctor's degree from Harvard. Besides these, the following temporary appointments as acting professors have been made: Professor Jesse Macy, of Iowa College, and Professor James A. Woodburn, of University of Indiana. They will give courses during the second semester in American History, pending the permanent filling of the vacancies in the department, leave of absence from their home institutions having been granted them for this purpose.

In Economics and Political Science, Dr. Allyn A. Young has been promoted to a full professorship. Dr. Burt Estes Howard is elected to a professorship in Political Science. Dr. Howard is a graduate of Western Reserve University, with the degree of A. M. from Harvard and Ph. D. from Heidelberg. Assistant Professor Henry A. Millis is absent for the year as assistant to the National Bureau of Immigration. His work will be taken by Dr. Thomas Sewell Adams, of the University of Wisconsin, who will spend the second semester as acting professor at Stanford.

In Law, Professor Frederic C. Woodward becomes the department executive. Assistant Professor Wesley N. Hohfeld has been advanced to the title of associate professor. The appointment of Mr. Joseph W. Bingham as assistant professor has been made permanent.

In Philosophy, Assistant Professor Henry W. Stuart has been made associate professor, and executive head of the department. Instructor George H. Sabine has been made assistant professor.

In Chemistry, Mr. William G. Bateman has been appointed instructor. Mr. Bateman is a graduate of Stanford, class of 1907.

In Geology and Mining, Vice-President John C. Branner has returned from a year's sabbatical leave in Brazil. Mr.

John F. McClelland has been made associate professor in Mining Engineering.

In Bionomics, Mr. Robert E. Richardson returns as instructor. Mr. Richardson is a graduate of the University of Illinois.

In Hygiene, Mr. Edward W. Moulton and Mr. Henry W. Maloney have been appointed assistants in gymnastics, with especial reference to out-of-door work, for which the climate of California is so well adapted.

In Applied Mathematics, Assistant Professor Halcott C. Moreno returns from sabbatical leave.

In Civil Engineering, Associate Professor John C. L. Fish has been made professor of Railroad Engineering, and will resume work, after several years absence, with the beginning of the second semester. Mr. Frederick H. Fowler, instructor in Civil Engineering, has resigned to go into practical work, and is succeeded by Mr. Charles Moser, a graduate of Stanford, class of 1908.

In Mechanical Engineering, Instructor Everett P. Lesley has been promoted from an instructorship to be assistant professor and superintendent of shops. Mr. Frank O. Ellenwood has been made instructor. Mr. Ellenwood is a graduate of Stanford, class of 1904.

In the Library, Mr. Melvin G. Dodge is absent on sabbatical leave. Miss Pearl Green, reference librarian, has been absent on leave for the year, and has been granted a further year's leave. Mr. S. B. Mitchell has been added to the library staff as supervisor of purchases.

The year has been marked by two important events connected with the University Library, one the setting aside of a special fund of \$40,000 for the completion of sets of periodicals; the other, the consummation of arrangements for a library endowment of \$500,000, the income from which is to be used for the purchase of books, the latter act carrying out the wish of Mrs. Stanford that her jewels be sold and devoted to this purpose, the fund thus created to be known as the "Jewel

**The Jewel
Fund**

Fund." It is proper to put on record here the resolution of your Honorable Board, under date of May 29th, establishing this fund. These resolutions are as follows:

"WHEREAS, It was a cherished plan of Mrs. Jane L. Stanford that all jewels left by her should be sold after her death, and that the proceeds (estimated by her at more than five hundred thousand dollars) should be invested as a permanent fund of which the income should be used exclusively for the purchase of books for the Library of the Leland Stanford Junior University; and

"WHEREAS, The pressing financial needs of the University compelled her temporarily to forego said plan, and to sell many of said jewels in her lifetime in order to raise money to maintain the University; and

"WHEREAS, By communication delivered to this Board at its meeting held February 22, 1905, Mrs Stanford declared: 'In view of the facts of my interest in the future development of the University Library, I now request the Trustees to establish and maintain a Library fund, and upon the sale of said jewels after my departure from this life, I desire that the proceeds therefrom be paid into such fund and be preserved intact, and invested in bonds or real estate as a part of the capital of the endowment, and that the income therefrom be used exclusively for the purchase of books and other publications. I desire that the fund be known and designated as the Jewel Fund. I have created and selected a Library Committee of the Board of Trustees, under supervision of which all such purchases shall be made'; to which communication this Board replied by resolution adopted at said meeting, that it assented to the wishes of Mrs. Stanford as expressed in said communication, and assured her that they would be carried out; and

"WHEREAS, Some of the jewels left by Mrs. Stanford have been sold by the Trustees, and those still on hand will be sold as rapidly as may be practicable without serious sacrifice, but as the proceeds of all jewels left by her will probably not exceed the sum of one hundred and fifty thousand dollars, owing to said use by her of the greater part of them in order to maintain the University;

"Now therefore, in order to carry out said plan of Mrs. Stanford, and to perform the promise made by this Board to her, it is

"Resolved, That a fund of five hundred thousand dollars, to be known and designated as the Jewel Fund, be hereby created and established, which fund shall be preserved intact, and shall be separately invested, and kept invested in bonds or real estate by the Board of Trustees, and the income of said Fund shall be used exclusively in the purchase of books and other publications for the Library of the Leland Stanford Junior University, under the supervision and direction of the Library Committee of this Board of Trustees."

During the year, the establishment of the Department of Medicine has been practically completed. The property of the Cooper Medical College has been deeded to the Board of Trustees of the University, and it has been accepted by the Trustees, in the following series of resolutions:

Medical Department "WHEREAS, Cooper Medical College, a corporation created and organized for the purpose of medical education under the laws of the State of California, and having its college buildings in the city and county of San Francisco, in said State, is about to convey and transfer to the Trustees of Leland Stanford Junior University all the properties, both real and personal, wheresoever the same may be situated, now belonging to said college, to the end that all the said properties may be used by the Medical Department of said University for purposes of medical education; now therefore, be it

"Resolved, That we, as such Trustees, do accept all and singular said properties, to be used as aforesaid, including the erection and maintenance by us of a library building and library in said city and county of San Francisco, said library building to be named the Levi Cooper Lane Library of Medicine and Surgery, as provided for by the will of Pauline C. Lane, and to the extent of the properties and their proceeds bequeathed to Cooper Medical College by said will for the said purpose, and that all the diplomas issued by said University to those who have taken the course in said Medical Department shall bear upon their face the words 'founded as Cooper Medical College by Levi Cooper Lane'; and it is further

"Resolved, That in the event any of the said buildings, together with the lands on which they stand, are sold by said Trustees, then and in such event other buildings shall be erected out of the proceeds of such sale (said buildings to be used for the purpose of medical education), and on their walls shall be placed such tablets as shall in appropriate language perpetuate the name of Levi Cooper Lane. Further

"Resolved, That said Trustees will maintain a perpetual fund for the maintenance of the Lane Medical Lectures not to exceed \$50,000 out of moneys which may be transferred to said Trustees for said purpose."

It is decided that the work of the first year in medical instruction shall begin at Stanford University in August, 1909. In the fall of 1910 the University will be prepared to provide instruction for the second year's work, students entering then receiving the degree of M. D. in 1913. To this end, the following nucleus of a medical faculty was chosen on October 30, 1908:

Adolph Barkan, as Professor of Structure and Diseases of the Eye, Ear and Larynx.

Henry Gibbons, Jr., as Professor of Obstetrics.

Joseph O. Hirschfelder, as Professor of Clinical Medicine.

Stanley Stillman, as Professor of Surgery.

Emmet Rixford, as Professor of Surgery.

William Ophüls, as Professor of Pathology.

Ray Lyman Wilbur, as Professor of Clinical Medicine.

William F. Cheney, as Clinical Professor of Diseases of Digestive System.

Arthur W. Meyer, as Professor of Human Anatomy.

With these, the following members of the present Stanford Faculty will be associated in medical instruction:

John M. Stillman, Professor of Chemistry.

Oliver P. Jenkins, Professor of Physiology.

Frank M. MacFarland, Professor of Histology.

William F. Snow, Associate Professor of Hygiene.

George C. Price, Associate Professor of Embryology.

Robert E. Swain, Associate Professor of Physiological Chemistry and Bacteriology.

The following statement of organization, entrance requirements and curriculum, as acted upon by the Board of Trustees at its meeting of October 30th, has been provisionally adopted:

ORGANIZATION

The medical faculty shall consist of all professors and associate professors giving instruction in subjects included in the four years' medical course or in any graduate course in Medicine, either in San Francisco or at the University, and all such members shall have votes in the medical faculty. Those members of the medical faculty who give practically full time to instruction and who receive salaries from the University on that basis, and the dean or executive head of the medical department or school, shall be members of the Academic Council of the University under the same conditions and on the same basis as is provided under the articles of organization of the faculty. The members of the medical faculty who are at the same time members of the Academic Council shall represent the medical faculty in all such matters as affect the relations of the medical department or school to the University at large, as requirements for admission, requirements for graduation, standards of scholarship to be

maintained, and these recommendations shall be subject to the approval of the Academic Council.

In other respects the medical faculty shall bear the same relation to the Trustees, the President and the University faculty as the other department faculties. The management of the hospital and of all administrative and executive work of the medical department or school shall be in the hands of the medical faculty and of such committees as they may select, subject to the control of the Board of Trustees.

ENTRANCE REQUIREMENTS

The entrance requirements of the medical course shall until modified by the properly organized medical faculty, with the approval of the Academic Council and the Board of Trustees, consist of three years (approximately ninety hours) credits in this University or the equivalent of such preparation in any other university or college as accepted by the Academic Council or its committees, provided that such course shall have included one year of physics with laboratory work, one year of physiology or biology with laboratory work, one year of chemistry with laboratory work, and a reading knowledge of either German or French (to the satisfaction of the medical faculty). The State law governing the practice of Medicine in the State of California prescribes that—

“Every person before practicing medicine or surgery or any of the departments of medicine or surgery in this State must . . . produce satisfactory testimonials of good moral character and a diploma issued by some legally chartered medical school, the requirements of which medical school shall have been, at the time of granting such diploma, in no particular less than those prescribed by the Association of American Medical Colleges for that year.”

For the year 1908 the Association of American Medical Colleges prescribes that every medical student must be registered in a medical college or department for four years and that his preparatory course shall have included 2 years of Latin, 2 years of mathematics, 2 years of English, 1 year of biology (or physiology) with laboratory work, 1 year of history, 2 years of laboratory science, and 6 years further credits in language, literature, history or science.

In order to “adjust the pre-medical students to our major professor system” it is recommended that major students of any department in the University who wish to enter the medical department and who have completed three years of the requirements of such departments and who have included in their courses the subjects for entrance to the medical course, may at the beginning of their fourth (or senior) year in the University, register as students of Medicine, and on completion of the first year’s course in Medicine may receive the degree of A. B. from the University. The Department of Physiology in its course for the A. B.

degree includes all the work leading through the first year of the medical course, with the exception of practical human anatomy.

COURSES OF STUDY

FIRST SEMESTER		SECOND SEMESTER	
Credit Hours		Credit Hours	
3	Neurology—Gross and minute anatomy of the Brain and Spinal Cord.	3	Neurology—Gross and minute anatomy of the Sense Organs.
3	Histology.	3	Histology.
3	Anatomy—with Dissection	2	Anatomy—with Dissection.
3	Physiology 2—Muscle, Nerve, Circulation.	3	Physiology 3—Digestion, Respiration, Nutrition, Metabolism, etc.
2	Embryology.	3	Organic Chemistry.
		3	Chemical Laboratory (Toxicology).
—		—	
14		17	
Actual Time		Actual Time	
Lec.	Lab.	Lec.	Lab.
1	6	1	6
1	6	1	6
	9		6
1	5	1	5
	6	3	
			9
—	—	—	—
3	32	6	32
THIRD SEMESTER		THIRD SEMESTER	
Credit Hours		Actual Time	
1	Journal Club (Anatomy and Physiology)	Lec.	Lab.
3	Bacteriology	1	Journal Club
2	Anatomy (dissection)	1	6
3	Pharmacology (experimental)		6
3	Physiological Chemistry	2	3
3	Chemical Laboratory (Physiological Chemistry)	3	
3	Physiology 6 (Nervous system sense organs)		9
		1	5

The three foregoing semesters are to be given at the University. The following five semesters are to be given in San Francisco:

FOURTH SEMESTER		FIFTH SEMESTER	
Credit Hours		Credit Hours	
3	Applied Anatomy (Lecture and Laboratory)	7	Medicine (Lect. and Clin.)
3	Medicine (Phys. Diagnosis, etc.)	6	Surgery (Lect. and Clin.)
4	Surgery	2	Special Pathology
5	General Pathology (Lecture and Recitations)	2	Clinical Pathology (Lab.)
2	Pathology, Histology (Laboratory)	1	Gynecology
2	Special Anatomy (Pelvic)	1	Genito-Urinary Diseases
2	Pharmacognosy and Prescription		
2	Physical Therapeutics		
—		—	
23		21	

SIXTH SEMESTER		SEVENTH SEMESTER	
Credit Hours		Credit Hours	
7	Medicine (Lect. and Clin.)	2	Medicine (Clinic)
6	Surgery (Lect. and Clin.)	3	Medicine (Section Work)
2	Special Pathology	2	Surgery (Clinic)
2	Obstetrics (Lect. and Recit.)	3	Surgery (Section Work)
1	Children's Diseases	1	Obstetrics (Practical)
1	Dermatology	2	Ophthalmology, etc.
1	Ophthalmology, etc.	2	Genito-Urinary Diseases
1	Neurology (Pathol.)	2	Gynecology
1	X-ray technique, etc.	2	Pediatrics
		2	Dermatology
		1	Hygiene (Lecture)
		1	Psychiatry (Lecture)
		1	History of Medicine
—		—	
22		24	

EIGHTH SEMESTER	
Credit Hours	
2 Medicine (Clinic)	2 Genito-Urinary Diseases
3 Medicine (Section Work)	2 Gynecology
2 Surgery (Clinic)	2 Pediatrics
3 Surgery (Section Work)	2 Dermatology
1 Obstetrics (Practical)	1 Hygiene (Lecture)
2 Ophthalmology, etc.	1 Legal Medicine
	1 History of Medicine
	—
	24

The work of the fourth medical year is to be almost entirely clinical, the systematic discussion of the principal topics being given in the third year and elementary courses necessary to the preparation therefor being given in the second semester of the second year.

The "Clinics" in Medicine and Surgery provided for in the fourth year are understood to be set clinical lectures, for which due preparation is made. The "Section Work" is carried on at the bedside in the hospital, in the hospital laboratory and in the dispensary.

This program of studies applies strictly to those students only who present the minimum of requirements above outlined. Students who have had work in the University itself during their three college years can have anticipated some of the work of the first medical year and will thereby be enabled to arrange their work to better advantage or to take other desirable courses.

It is necessary that practical anatomy (dissection) be given during the course at the University, beginning with the first medical year as indicated on the above schedule. It would seem wise in addition to provide for instruction in pharmacology (didactic and experimental) at the University, that the student may have as thorough training as possible in the physiological actions of medicine before undertaking to study the manner of using them in the practice of medicine.

Instruction in general bacteriology should also be given at the University.

A tuition fee of \$150 per annum for the four years (being the same as now charged in Cooper Medical College and in

the Medical Department of the University of California), with such laboratory fees and other fees for anatomical material, etc., as are customary in the various departments, will be charged in the new department.

Mr. Delos Arnold, of Pasadena, California, has presented to the Department of Geology of the University his great collection of fossils, corals, minerals and ethnologic materials. It is a condition of the gift that the University shall keep the collection intact, properly caring for it, labeling it and keeping it on exhibition. The museum room of the new Geology building, with its exhibition cases, will make it possible to properly house and display the collection. A detailed account of the collection will be found in the report of the Department of Geology.

**The
Arnold
Collection**

Hon. Delos Arnold, the donor of this collection, was born in Chenango County, New York, on July 21, 1830. He was educated in the common schools of that State, and at Fredonia Academy, in Chautauqua County, New York. He studied law at the Albany Law School, from which he graduated in 1853, moving directly to Marshalltown, Iowa. For several years he was District Attorney and Treasurer of Marshall County. He was appointed U. S. Assessor of Internal Revenue for the Sixth Iowa District by President Lincoln, and served four years. For twelve years he was a member of the Iowa Legislature. He was also special State Auditor to examine the accounts in connection with the State Capitol of Iowa. In recent years Mr. Arnold has made his home in Pasadena, California. For ten years he has been a member of the School Board of the city of Pasadena. His son, Dr. Ralph Arnold, is a graduate of the University with the class of 1899.

The present summer has been spent by the President as the representative of the United States on the International Fisheries Commission, created under the treaty of April 11, 1908, between Great Britain and the United States. The purpose of this commission is to bring about a unification of the fishing statutes of all the

**Investi-
gations**

boundary waters of the United States and Canada, to promote friendly feeling along the boundary, to provide for the preservation and protection of the fisheries, and for the advancement of the fishing interests generally.

During the summer, Professor Gilbert was engaged in the investigation of the trout of the Pacific Coast, with special reference to the question of the difference, if any exists, between the two principal species, the steelhead and the rainbow. This investigation is under the auspices of the United States Bureau of Fisheries. Professor Motley has been engaged in the study of the relief work in San Francisco following the fire of 1906, his investigations being under the auspices of the Sage Foundation. Professor Sanford has been engaged in investigations of the Chinese immigration problem, under the direction of the U. S. Bureau of Immigration. Mention may also be made of the extensive investigations of Professors Swain and Peirce in the matter of injury to vegetation through smelter fumes. Dr. Branner has been engaged during his sabbatical leave in geological researches in Brazil.

With this year was begun the publication of a series of monographs by members of the University Faculty. This is known as the "University Series," and replaces the earlier series of scientific publications known as "Contributions to Biology" of the Marine Laboratory. The first of this new series is entitled "Studies in Inheritance in Silk-worms," by Professor Vernon Lyman Kellogg, of the Department of Entomology and Bionomics.

The following is a list of the publications of individual members of the faculty for the year:

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- ALDEN, RAYMOND MACDONALD: Filippo (fiction): *Cosmopolitan*, 45; July, 1908. The Bureau of Destiny: *Collier's Weekly*, May 17, 1908.
- ALLARDICE, ROBERT E.: On the limits of the roots of an equation that is independent of all but two of the coefficients: *American Mathematical Society: Bulletin*, 13; June, 1907.

- BLICHFELDT, HANS FREDERIK: On modular groups isomorphic with a given linear group: *American Mathematical Society: Transactions*, 8; 1907.
- BRANNER, JOHN CASPER: Bibliography of clays and the ceramic arts: *American Ceramic Society*, Columbus, 1906. Bibliography of the geology of Brazil: *Geological society of America: Bulletin*, 19; 1908. The clays of Arkansas, *U. S. Geological Survey: Bulletin*, 351; Washington, 1908. (With D. S. Jordan), The Cretaceous fishes of Ceará, Brazil: *Smithsonian Miscellaneous Collections*, 52; 1908. The geography of Bahia: *Boletim da sociedade geographica de Rio de Janeiro*, 1908. Lista de altitudes no estado da Bahia. *Ministerio de Viacao e obras Publicas*. Rio de Janeiro, 1908. Portions of the report of the State Earthquake Commission upon "the California earthquake of April 18, 1906": *Carnegie Institution: Publication No. 87*, 1908. Relatorio sobre a geologia dos estados da Bahia, Sergipe e Alagoas. Report to the Brazilian Secretary of Public Works. Rio de Janeiro, 1908. Syllabus of a course of lectures on elementary geology, 3d ed. Stanford University, 1908.
- BRIGGS, WILLIAM DINSMORE: A note on the sources of Ben Jonson's Discoveries: *Modern Language Notes*, 23; Feb., 1908.
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- COOPER, WILLIAM ALPHA, tr: Bielschowsky's Life of Goethe: authorized trans. from the German, 3v., N. Y., Putnam, 1905-08.
- CUBBERLEY, ELLWOOD P.: Agricultural high schools: *Western Journal of Education*, 13; May, 1908. Alameda county and teachers' salaries: *ibid.*, 12; Oct., 1907. Massachusetts; seventy years ago and now: *ibid.*, 12; Nov., 1907. Professional preparation of high school teachers: *Proceedings of the National Education Association*, 45; 1907. Professional supervision for New York: *Western Journal of Education*, 13; Feb., 1908. Punishment and children: *ibid.*, 13; April, 1908. The salary question and the rural school: *ibid.*, 13; Jan., 1908. Schoolmasters' club reports: *ibid.*, 12; Dec., 1907. The shortage of teachers: *ibid.*, 12; Sept., 1907. Some significant high school decisions: *ibid.*, 13; March, 1908. The Stanford teacher: *Stanford Alumnus*, 9; April, 1908. The State teachers' association: *Western Journal of Education*, 13; Jan., 1908. The training of educational leaders: *ibid.*, 12; Dec., 1907.

- DANTON, GEORGE HENRY: Anthon Reiser and Asmus Semper: *Modern Language Notes*, 23; March, 1908. A curious slip in Wieland: *ibid.*, 22; Dec., 1907. The influence of India and Persia on the poetry of Germany—Review: *Journal of English and Germanic Philology*, Sept., 1907. The nature sense in the writings of Ludwig Tieck, N. Y. *Columbia University Press*, 1907. (With F. W. J. Heuser). *Die ahnfrau*, by Franz Grillparzer, with introduction, notes and vocabulary. N. Y., Holt, 1907.
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- DICKERSON, MARY CYNTHIA: The pageant of nature; vii, On sandy beaches; viii, September musicians; ix, When winter comes; x, The hungry days of December: *Country life in America*, 12; Aug.-Sept., 1907; 13; Nov.-Dec., 1907. (With D. S. Jordan), Description of a new species of half-beak (*Hemiramphus mioprurus*) from Nagasaki, Japan: *U. S. National Museum: Proceedings*, 34; 1908. (With D. S. Jordan), Notes on a collection of fishes from the Gulf of Mexico at Vera Cruz and Tampico: *U. S. National Museum: Proceedings*, 34; 1908.
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- DURAND, WILLIAM FREDERICK: Improved transmission dynamometer: *American Society of Mechanical Engineers: Transactions*, 28; 1097. Researches on the performance of the screw propeller: *Carnegie's Institution: Publications*, No. 79; 1907.
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- MATZKE, JOHN ERNST: The lay of Eliduc and the legend of the husband with the two wives: *Modern Philology*, 5; Oct., 1907.
- MILLIS, HARRY A.: Business and professional taxes as sources of local revenue: *Journal of Political Economy*, 16, Feb., 1908.
- MOTLEY, JAMES MARVIN: Apprenticeship in American trade unions. Baltimore, 1907; *Johns Hopkins University Studies in Historical and Political Science*. Nov.-Dec., 1907.
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- RENDTORFF, KARL G.: Hauptmann's Kaiser Karls Geisel, eine kritische Würdigung. Leipzig, Verlag für Literatur, Kunst & Musik. 1908.
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- SANFORD, FERNANDO: Contact electromotive force and cohesion: *Physical Review*, 26; May, 1908. On physical lines of force in electrical theory: *ibid.*, 26; April, 1908.
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- SLONAKER, JAMES ROLLIN: Description of an apparatus for recording the activity of small mammals: *Anatomical Record*, 2; June, 1908. The normal activity of the white rat at different ages: *Journal of Comparative Neurology and Psychology*, 17; July, 1907.
- SNYDER, JOHN OTTERBEIN: Description of *Pantosteus santa-ana*; a new species of fish from the Santa Ana River, California: *U. S. National Muscum: Procecdings*, 34; 1908. (With D. S. Jordan) Description of three new carangoid fishes from Formosa: *Carnegie Museum, Memoirs*, 4: No. 2, Pittsburgh. The fauna of Russian River, California and its relation to that of the Sacramento: *Science*, n. s. 27; Feb. 14, 1908. (With D. S. Jordan) Notes on the fishes of Hawaii, with descriptions of new species: *U. S. Bureau of Fisheries: Bulletin*, 26; 1906. (With D. S. Jordan) Description of a trout from Lake Kootenay in British Columbia: *Biological Society of Washington; Proceedings*, 21; Jan. 23, 1908. Relationships of the fish fauna of the lakes of Southeastern Oregon: *U. S. Bureau of Fisheries: Bulletin*, 27; 1907.
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- SWAIN, ROBERT ECKLES: (With W. D. Harkins) The chronic arsenical poisoning of herbivorous animals (Papers on Smelter Smoke, No. 3): *American Chemical Society: Journal*, 33; June, 1908. Arsenic in vegetation exposed to smelter smoke (Papers on Smelter Smoke, No. 2): *ibid.*, 30; June, 1908.
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- YOUNG, ALLYN ABBOTT: Transportation and Communication: *Review of Legislation for 1906*. Albany, 1907; New York State Library: Year Book of Legislation, 1906, *Legislation Bulletin* 33d. (With R. T. Ely,

T. S. Adams and M. O. Lorenz): Outlines of Economics, rev. ed. N. Y., Macmillan, 1908.

It is fitting to mention here the great loss sustained by the University in the death of Hon. Thomas B. McFarland, a member of the original Board of Trustees, which occurred on September 16, 1908. A more extended notice of Judge McFarland and his work will find a place in the report for the current year.

Appended to this report will be found the special reports of the various departmental executives and other administrative officers, including the chairman of the principal standing committees.

Respectfully submitted,

DAVID STARR JORDAN,
President.

December 31, 1908.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK.

During the year 1907-08 the department faculty consisted of Augustus Taber Murray, Professor; Henry Winchester Rolfe, Associate Professor (absent on leave), and Edward W. Hope, Instructor, assisted by Messrs. Elmore, Foster, and Martin of the Department of Latin.

The following courses were given:

INSTRUCTOR	COURSE	Hours Weekly	Attendance	
			1st Sem.	2nd Sem.
Murray	1. Elementary	3	11	8
Murray	14. Tragedy	3	11	8
Murray	19b. General Lectures.....	1, 2	46	71
Murray	26. Epic { (Lectures)..... }	2	111	...
Murray	27. Tragedy { (Lectures)..... }	2	...	176
Murray	20. Lyric Poetry.....	2	3	3
Murray	21. Seminary	2	5	5
Hope	4. Prose Composition and Sight-translation	2	3	...
Hope	3. Odessey and Herodotus.....	3	...	11
Hope	7. Homer	3	7	...
Hope	9. Prose Composition and Sight-translation	2	5	8
Hope	13. Private Life of Greeks.....	1	...	56
Elmore	2. Zenophon, Plato and Lysias..	3	12	...
Foster	8. Euripides, Lucian, etc.....	3	...	6
Martin	17. Teachers' Course.....	2	5	...
Martin	19. Testament	2	10	8
Martin	25. Beginning Course.....	3	...	15

Courses 20 and 21 in the above list were given for graduate students, course 19b was given in conjunction with the Latin department, course 25, not announced in the Register, was an introductory course for beginners.

During the year the faculty of the department has been increased by the appointment of Mr. E. W. Hope as an additional instructor; its equipment has been enlarged by the purchase of additional maps and lantern slides and its library strengthened by the purchase of needed sets of periodicals, and of books relating chiefly to Plato and the History of Ancient Philosophy.

AUGUSTUS T. MURRAY,
Professor of Greek.

LATIN.

During the academic year 1907-08, the faculty of the Department of Latin consisted of Professor H. R. Fairclough and Assistant Professors J. Elmore, B. O. Foster and E. W. Martin. Professor Murray and Dr. E. W. Hope, co-operated in the work of instruction. Mr. James Grant Ferguson acted as Assistant.

The number of major students in Latin was 46 for the first semester, and a like number for the second. Of these 7 were graduates.

The courses of instruction given were as follows:

INSTRUCTOR	COURSES	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Hope	1. Virgil and Cicero.....	3	6	4
Elmore and Fairclough...	2. Terence, Cicero and Horace.	3	12	10
Martin	2. Terence, Cicero and Horace.	3	8	8
Foster	2. Terence, Cicero and Horace.	3	7	14
Foster and Murray.....	3. Terence, Cicero and Selec- tions	2	21	18
Martin	4. Prose Composition 1.....	2	23	17
Foster	5. Horace, Satires and Epistles	3	13	...
Elmore	6. Livy and Tacitus.....	3	...	12
Elmore and Foster.....	7. Prose Composition 2, and Sallust	2	18	19
Fairclough	8. Roman Comedy.....	2	12	...
Elmore	9. Cicero's Letters.....	2	...	13
Martin	10. Pliny's Letters.....	2	19	...
Foster	11. Elegiac Poets.....	2	...	5
Fairclough	13. Prose Composition 3.....	1	12	11
Elmore	14. Martial and Juvenal.....	2	9	...
Fairclough	15. Quintilian	2	6	...
Elmore	17. Teacher's Course.....	2	...	16
Fairclough	18. Bucolic Poetry.....	2	...	7
Martin	19. Prose of the Empire.....	2	...	22
Fairclough	22. Seminary (Plautus).....	2 or 3	10	11
Fairclough	23. Reading of Plautus.....	1	10	11
Foster	27. Historical Grammar.....	2	4	...
Elmore	29. History of Rome.....	3	...	103
Fairclough, Murray, El- more, Foster.	30. General Lectures.....	2	58	73
			248	374

H. RUSHTON FAIRCLOUGH,
Professor of Latin.

GERMAN.

During the academic year 1907-08, the teaching staff of the department consisted of George Hempl and James O. Griffin, professors; Karl G. Rendtorff, William A. Cooper and Macy M. Cooper, assistant professors; Bruno Boezinger and Hermann Hilmer, instructors. Professor Rendtorff being on leave of absence in Europe, his place was filled by Dr. George H. Danton, with the rank of acting assistant professor.

There were registered in the department during the year 92 major students, of whom 10 were graduates, 81 undergraduates, and one a special student. Of the graduate students, two were candidates for the Master's degree, and at the close of the year this degree was conferred upon Miss Helena May Nye.

The following tabular statement gives some idea of the work of the department and of the number of students pursuing the various courses.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cooper, Dan- ton, Boe- zinger	1. Elementary	5	77	63
Skinner	1. Elementary	3	10	9
Griffin, Skin- ner, Dan- ton, Boe- zinger	2a. 2nd year reading.....	3	130	118
Hempl, Grif- fin, Dan- ton, Boe- zinger	2b. 2nd year composition.....	2	46	45
Griffin, Cooper.	3. Classical Drama.....	3	56	49
Griffin	4. Modern Drama.....	2	40	46
Skinner	5. Modern Novels.....	2	17	12
Hempl	6. Advanced Grammar.....	2	37	36
Boezinger, Hilmer	7. Composition	2	37	38
Hilmer	8. Advanced Composition.....	2	22	16
Skinner	10. Schiller	2	11	9
Cooper	11. Goethe	2	35	28
Danton	13. Literature	2	18	17
Hempl	14. Teaching	2	15	15
Hilmer	16. Middle High German.....	2	5	3
Hempl	17. Old High German.....	2	4	3
Cooper	22. Goethe Proseminary.....	2	3	3

GEORGE HEMPL,
Professor of Germanic Philology.

ROMANIC LANGUAGES.

During the year 1907-08 the faculty of the department consisted of Professor John E. Matzke, Associate Professor Oliver M. Johnston, Assistant Professors Clifford G. Allen, and Albert Guérard and Instructors Homer P. Earle and Ernest G. Atkin. Mr. Earle filled the place left vacant by the absence on sabbatical leave of Assistant Professor Colbert Searles, who spent the year studying in Paris, and Mr. Atkin was appointed in the place of Instructor Stanley Smith, who left us in order to accept a call to the University of Washington.

In addition, Mrs. S. Boezinger and Mr. S. M. Cáceres assisted in the correction of exercises and Miss Josephine Dillon had general supervision of the phonograph work during the year.

The following table gives an outline of the courses offered, with the registration during each semester:

INSTRUCTOR	COURSE	No. of Sections	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Johnston, Allen					
Earle, Atkin.	1. Elementary French.....	4	3	127	102
Johnston, Atkin	2. Modern French Syntax.	2	2	43	37
Earle, Atkin...	3. Modern Fr. Reading...	3	3	100	77
Guérard, Allen.	4. French Conversation...	2	3	27	25
Guérard	5. Adv. French Comp.....	1	2	19	14
Guérard	6. French Themes.....	1	1	6	3
Johnston	7. Classical French.....	1	3	31	35
Guérard	8. Classical French Lit...	1	2	13	16
Matzke	9. 19th Cent. French Lit..	1	2	6	7
Guérard	10. French Lyric Poetry...	1	2	13	...
Guérard	11. Molière	1	2	...	5
Atkin, Allen,					
Earle	12. Elementary Spanish...	3	3	120	80
Earle	13. Modern Spanish Syntax	1	2	17	9
Earle	14. Modern Sp. Reading...	1	2	24	18
Earle	15. Spanish Conversation...	1	3	4	4
Allen	17. Adv. Spanish Comp....	1	2	5	5
Allen	19. History of Spanish Lit.	1	2	5	7
Johnston	20. Elementary Italian.....	1	3	9	8
Johnston	22. Dante	1	2	...	44
Matzke	23. Phonetics	1	2	11	...
Matzke	24. Teacher's Course.....	1	2	...	12
Matzke	28. Seminary	1	2	4	3

The number of major students registered in the department was 20. Of these 5 received the degree of A. B. The degree of A. M. was granted to Mr. E. H. Skinner (A. B. Stanford), his thesis being on the subject—

"The Use of the Preposition 'a' as the Sign of the Personal Accusative in Old and Modern Spanish."

Our experiments with the phonograph for the purpose of teaching the pronunciation of French and Spanish have proved satisfactory and we shall continue to avail ourselves of this method. However, to insure complete success we shall need a larger equipment and in addition it will be necessary that a member of our teaching staff devote a portion of his time to direct instruction along this line. We are now making arrangements to set this plan in operation in the near future.

To foster the practical demands of French, Professor Guérard gave a course of public lectures in French on "Modern France and Her Problems." In addition he directed the meetings of the French Club, and a similar Spanish Club met under the supervision of Professor Allen.

The advanced work of the department consisted in a course of Comparative Literature by Professor Matzke on "The Romans d'Aventure and the Great Legends of the Middle Ages."

Toward the end of the year Mr. H. Bluestone was appointed Acting Instructor for the following year. Mr. H. P. Earle accepted a position in the Los Angeles High School.

JOHN E. MATZKE,
Professor of Romanic Languages.

ENGLISH LITERATURE AND RHETORIC.

The faculty of the department consisted of Professors Melville B. Anderson and Alphonso G. Newcomer; Assistant Professors Raymond M. Alden, Samuel S. Seward, Jr., Howard J. Hall, Lee E. Bassett, Henry D. Gray, and William D. Briggs; Instructors Frederick A. Manchester, Theresa P. Russell, and Catherine L. Fields; and Assistants Anna M. Bille, Elizabeth H. Cone, Charles L. Geer, Helen Thoburn, Elizabeth S. Burritt, and Davida C. French.

Professor Bassett, who was absent on sabbatical leave, spent most of the year in study at Oxford. Dr. Alden was absent on sabbatical leave the second semester, pursuing studies at Paris on the history of the theory of poetry.

The following courses were given:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Fields	1. Vocal Expression.....	3	31	31
Fields, Seward	2a. Elementary Composition (Four sections).....	2	103	115
Hall, Briggs, Gray, Man- chester, Rus- sell	2b. Composition (Seven sections)	2	218	...
Manchester, Hall, Gray, Briggs, Rus- sell	2c. Composition	2	....	247
Seward	3. Note-taking	1	66	16
Manchester, Russell, New- comer	5a. Prose Classics (Three sections).....	3	123	...
Manchester, Russell	5a. Prose Classics.....	3	....	64
Hall	5b. American Life and Letters..	3	37	...
Gray	6a. Types of Poetry.....	3	....	63
Hall	6b. Tennyson	3	....	82
Gray	9. English Bible.....	3	67	...
Newcomer, Seward	10. Shakespeare	2	95	87
Seward	22. Narration	1	21	17
Briggs	24. Argument	2	29	...
Alden, Duni- way	25. Oral Debate	2	16	...
Seward	28. Teacher's Course.....	2 to 3	15	15
Briggs	31b. Early Hist., Eng., Lit.....	3	....	25
Hall	32. Later Hist., Eng., Lit.....	3	23	19
Alden	33. Early 19th Cent. Lit.....	2	17	...
Newcomer	35. Victorian Prose	2	26	23
Gray	38. English Novel.....	2	24	27
Alden	39. Prosody	2	32	...
Anderson	40. Shakespeare	3	20	31
Anderson	42. Milton	3	48	...
Anderson	44. Browning	3	....	86
Alden	53. Eng. Lyric.....	2	....	2
Anderson	55. Seminary	2	9	7
Total			1020	957

In addition to the courses above, Doctors Alden and Briggs conducted each one course in the Department of English Philology.

The number of students registered in the department was 177, of whom 7 were special students and 13 graduates. Twenty-six students received the degree of A. B. and two the degree of A. M.

The acceptance of high school certificates in entrance English Composition has increased the amount of necessary instruction in that branch, since entering students are still submitted to a test and those who are found deficient are required to enroll in an elementary university class instead of making up the deficiency outside. The department should have two instructors for the special conduct of this work, in order that the present experienced instruction force may give more time to advanced rhetoric—including argumentation, debate and public speaking—which the steadily growing Law Department looks to us to supply.

In the general work of the department, the present tendency is toward a reduction of the number of purely literary courses in the interest of higher quality and greater concentration upon composition, vocal training, and the literature of most permanent value. With the steady acquisitions of books to the general library, and the return of Dr. Flügel to the Department of English Philology, we are now in a better position to care for graduate students seeking advanced degrees.

ALPHONSO G. NEWCOMER,
Professor of English.

ENGLISH PHILOLOGY.

During the first semester of the academic year the staff consisted of Dr. R. M. Alden and Dr. W. D. Briggs of the Department of English Literature and Rhetoric, who, as in the year before, were kind enough to take the undergraduate work upon themselves, enabling Dr. Flügel to devote himself to post-graduate work and the completion of the letter "A" of the Chaucer Dictionary.

During the second semester one under-graduate course was continued by Dr. Briggs and four graduate courses were given by Dr. Flügel, who returned after a two years' leave of absence spent in England and Germany. During this time Dr. Flügel was engaged collecting the materials for the Chaucer Dictionary under a grant from the Carnegie Institution of Washington, D. C. (cf. the more detailed reports in the year-books of this institution).

The following is a list of the courses given during the year :

COURSE	INSTRUCTOR	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
1. Anglo-Saxon	Briggs	3	19	21
2. Chaucer (Elementary).....	Alden	3	34	..
6 Beowulf	Flügel	3	..	3
8. Chaucer (Advanced).....	Flügel	2	..	4
9. Ballads	Flügel	2	..	15
11. Research	Flügel	3	..	1
	Total		54	44

In the research course which is to take in the future the place of the former seminary course, a paper "On the Pronouns of Address in Chaucer" was prepared by Mr. C. L. Geer on the basis of the materials collected for the Chaucer Dictionary.

EWALD FLÜGEL
Professor of English Philology.

PHILOSOPHY

The faculty of the Department for the year 1907-08 consisted of Professor Frank Angell, who acted as executive head, Dr. Henry W. Stuart, assistant professor, and Dr. George H. Sabine, instructor.

The courses conducted, with the registration in each, were as follows :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Stuart	1. Elementary Logic.....	3	34	..
Stuart	2. Elementary Ethics.....	3	23	..
Sabine	3. History of Philosophy.....	3	27	11
Sabine	4. XIX Century Thought.....	2	27	..
Stuart	5. Advanced Logic.....	3	..	14
Stuart	6. Historical and Practical Ethics	3	..	12
Sabine	7. History of Evolution, etc....	2	..	26
Sabine	8. Greek Philosophy.....	3	..	1
Stuart	9. Problems of Mod'n Philosophy	2 or 3	7	7

It was thought advisable during the first year of the department's work to adapt the courses to the existing needs and interests of as large a number of students as possible. All the courses, accordingly, excepting courses 5, 6 and 9, were offered without requirement of previous work in philosophy. Course 9 was planned for students who had attended the lectures given by Professor William James in the second semester of 1905-06 and for students who might wish to continue work in philosophy commenced in other institutions. The registration was in fact drawn from these two sources, but the course as actually conducted was hardly of more advanced grade than a number of other courses offered in the department. As the work of the department continues and develops it will be possible to arrange our courses in more definite and proper relations of sequence.

During the year the Department of Law adopted a rule making the year's work in Logic, consisting of courses 1 and 5, as above enumerated, alternative with the year's work in elementary mathematics required of major students in law. It is desired to make these courses, particularly course 5, useful also to major students in the natural and social sciences who are interested in the problems and implications involved in the methods employed in these branches of investigation. Course 3 and others related to it should, in other words, also be of advantage to these classes of students as well as to students majoring in history or the literatures.

The sum of \$200 was allowed the department as a special library appropriation for the year. In addition, the members of the Department of Psychology generously placed at our disposal one-half of their regular annual allowance for this purpose. Toward the end of the year a separate regular allowance for the Department of Philosophy, together with a special appropriation for the year 1908-09, was provided by the Library Committee.

In March Dr. Stuart was made associate professor and acting head of the department, and Dr. Sabine was made assistant professor. Some provision was made for assistance in the necessary routine work connected with the elementary courses in Logic and Ethics. The experience of the present year will undoubtedly show the need of some increase in the allowance for this purpose.

The efforts of the teaching members of the department were principally devoted during the year to launching the new undertaking as effectively as might be. During the summer, however, Dr. Sabine was engaged for a time at Cornell University in carrying forward his work upon a study of the development of British Associationism, and the writer made a beginning upon a study of the logical aspects of Contemporary Realism.

HENRY W. STUART,
Associate Professor of Philosophy.

PSYCHOLOGY

The Faculty of the department consisted of Frank Angell, professor, and Miss Lilien J. Martin, assistant professor.

The class lists in the Registrar's Office show the following attendance in the several courses offered by the department during the year:

COURSE	INSTRUCTOR	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
1. General Psychology.....	Angell	5	68	..
2. Beginners' Laboratory.....	Martin, Angell.	3	8	14
4. Advanced Laboratory.....	Angell, Martin.	3	3	3
3. Psychology of Evidence.....	Angell	2	..	9
5. Applied Psychology.....	Martin	3	..	91
6. Applied Psychology.....	Martin	3	41	..
9. Research Work.....	Angell	Indef.	2	2

Besides the above courses, work was given in French and German psychological literature.

The chief problem of the department at present lies in developing efficient scholarship in the larger lecture courses (1, 5, 6). The instructors have sought to accomplish this by means of questions in the syllabi, and by such simple psychological work as a student could accomplish without direct supervision. While for psychological work this plan is much superior to that of relying exclusively on examination for incitation to and tests of scholarship, the department nevertheless feels that it is much less efficacious than that of viva voce questioning, which, however, is not feasible in classes of fifty or more students. It is, of course, open to the department to cut down the attendance by increasing the obstacles in the way of admission to the work. Feeling, however, that most of the students entering the larger lecture courses get some good from them, the department is at present disinclined toward making the work inaccessible except to a chosen few.

FRANK ANGELL,
Professor of Psychology.

EDUCATION

The work of the department was carried on during the year 1907-08 by the following staff: Ellwood P. Cubberley, professor; Percy E. Davidson, assistant professor; Morris E. Dailey, lecturer; and Jesse B. Sears, assistant.

During the past year the following courses were offered by the members of the department:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cubberley	1. Public Education in America	2	105	..
Cubberley	2. Public Education in Europe.	2	...	57
Davidson	3. Hist. of Education in Europe	3	67	..
Cubberley	5. Hist. of Education in Europe	3	...	81
Cubberley	8. Public Educ.—Adv. Course..	2	17	12
Cubberley	10. State School Administration.	3	15	15
Davidson	11. Principles of General Method	2	...	26
Davidson	12. The School Curriculum.....	2	...	18
Davidson	13. Current Educational Theories	2	14	..
Dailey, Davidson ...	14. Theory of Train. of Teachers	2	...	17
Cubberley	19. Special Courses—Adv. Work	2-5	1	2
Cubberley	20. Journal Club.....	1	12	..
Cubberley	21. Practice in Teaching.....	4	10	8
Dailey	21. Practice in Teaching.....	4	5	7
Davidson	22. Education and Society.....	2	11	..

It will be noted from the above that not only are the classes large but that the number of hours per instructor is also larger than can be carried to the best advantage. The appointment of Professor John A. Bergström, of the University of Indiana, to a full professorship will relieve the pressure to a certain extent, but the department is growing so rapidly that the relief afforded is likely to be only temporary. Certain parts of the work of the department must still be omitted.

During the year Instructor Thompson resigned to accept a full professorship in the University of Colorado, and Associate Professor Suzallo resigned to accept an adjunct-professorship in Columbia University.

The members of the department have answered the usual number of calls for lectures throughout the State during the year.

President Dailey of the State Normal School at San Jose gave a course of lectures on the Theory of the Training of Teachers during the second semester, which was taken by a considerable number of students.

Assistant Professor Davidson gave a Saturday course during the second semester. This met with a response from the teachers of the vicinity, as well as from regularly registered students. Many of those in attendance from outside the University hope to become regular students before long.

This University at present has a peculiar opportunity, and one which ought to be taken advantage of. By rounding out the instruction in Education better than it is at present and by providing a larger instructing staff, this institution is in position to become the leading place for the training of educational leaders west of the Mississippi River. We shall be able to draw many advanced students from the Eastern States as soon as our work is thus rounded out, and the instructors have more time to devote to the needs of advanced students.

ELLWOOD P. CUBBERLEY,
Professor of Education.

HISTORY

The faculty of the department for the year 1907-08 consisted of Professors Max Farrand, Ephraim Douglas Adams, and Clyde Augustus Duniway; Assistant Professor Henry Lewin Cannon; and Instructors Payson Jackson Treat and Andrew Edward Harvey.

Professor Arley B. Show was absent on leave throughout the year, and Professor Adams was absent on leave during the second semester, spending his time in research at the Record Office in London. Dr. Harvey, A. B., Princeton, 1898, and Ph. D., Marburg, 1906, was secured for one year to carry the general lecture courses of the two men absent on leave.

In January, 1908, Professor Farrand resigned to accept a chair of American History at Yale University, and in May, Professor Duniway resigned to become President of the University of Montana. Both resignations took effect at the close of the University year 1907-08. Neither of these places has been filled as yet by any permanent appointment.

For 1908-09 Professor Show has been granted an extension of leave of absence for purposes of study abroad. Mr. Treat has been granted leave of absence for one year that he may give a course of lectures at Harvard University on topics relating to colonization and the far East. An additional field of instruction has been provided for by the appointment of Mr. Percy Alvin Martin, Stanford, A. B., 1902; Harvard, M. A., 1906, as Instructor, to carry work in French and German History. Mr. S. L. Ware, Johns Hopkins, Ph. D., 1908, and Mr. J. H. Blair, Harvard, Ph. D., 1908, have been secured for the year to carry portions of the work in Mediæval History and American History, respectively.

The following is a list of the courses given in 1907-08, with hours of credit and attendance each semester :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Dodge, *Cannon	1. Training	1	55	36
Cannon, *Farrand	1 and 2. Training.....	2	16	21
Farrand	2. Training	1	27	23
Harvey	3a and 3b. Middle Ages.....	3	38	46
Cannon	4a and 4b. English History....	3	148	141
Adams, *Harvey	5a and 5b. Mod. Europ. Hist..	2	72	63
Duniway	7. America since 1783.....	3	67	80
Farrand	8. West in American History..	2	68	81
Treat	9. History of the Pacific.....	3	102	123
Cannon	11a. Eng. Constitutional History.	2	42	23
Cannon	12. English History	2	32	23
Harvey	13. Age of Renaissance.....	2	10	...
Harvey	13c. Italian Renaissance.....	2	...	5
Adams	15. Europe since 1789.....	2	12	...
Duniway	19. International Law.....	3	20	14
Duniway	20. Oral Debate.....	2	16	15
Cannon	29. England in the 16th Century.	2	...	7
Adams	31. English and Am. Relations..	2	9	...
Farrand	32. U. S. Constitution (Sem.)...	2	12	13
Farrand	33. Westward Movement.....	2	3	...
Treat	36. English Colonization in Aus tralia	2	5	10
Duniway	37. Seminar in U. S. History....	2	14	9
	Special courses (Thesis)	.	13	14
			781	757

*Second Semester.

EPHRAIM DOUGLAS ADAMS,
Professor of History.

ECONOMICS AND SOCIAL SCIENCE

The work of the department for the year 1907-08 was carried on by Associate Professors Allyn A. Young, Thorstein Veblen, and Albert C. Whitaker, and Assistant Professors Henry A. Millis and James M. Motley. Some instruction was also given by Mr. Ira B. Cross, assistant.

The courses given in the department were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Young	1. Elements of Economics.....	3	180	152
Millis	2. Principles of Economics.....	2	18	19
Motley	3. Industrial and Social History of England	3	8	...
Whitaker	4. Money and Banking.....	3	49	33
Young	5. Railway Transportation.....	3	21	27
Whitaker	6. The Corp. and Trust Problem	2	61	60
Millis	8. Public Finance.....	3	13	...
Motley	10. Financial Hist. of the U. S..	3	...	46
Millis	11. The Labor Problem.....	3	16	...
Millis	11a. Methods of Economic Reform	3	...	17
Motley	12. Charities	3	17	22
Millis	15. Amer. Methods of Taxation.	3	...	13
Veblen, Cross..	17. History of Socialism.....	3	17	...
Veblen	18. Socialism	3	...	16
Veblen	19. Economic Factors in Civili- zation	3	12	...
Young	21. Seminary in Railway and Corporation Finance.....	2	4	8
Young	22. Economic Conference.....	.	...	...

The number of major students was 131, an increase of 38 over the number of the preceding year. It is believed, moreover, that the extension in the scope of the department's work has led to a general increase in earnestness and definiteness of purpose on the part of its major students.

A new appointment, taking effect August, 1908, was that of Dr. Burt Estes Howard, Professor of Political Science. Political Science is a field which has grown rapidly in importance in American universities in the past ten years, and it is fortunate that Stanford University is again prepared to offer courses in this subject. Associate Professor Young was made Professor of Economics.

The library funds at the disposal of the department have enabled its members to provide fairly well for current needs, and in addition two important sets,—the Banker's Magazine, and DeBow's Review,—have been bought. Some additional funds allotted to the department for the coming year by the library committee enable the department to make a beginning in the purchase of books in the related lines of anthropology and ethnology.

Among the more important changes made in department regulations, the following may be mentioned: Economics majors are no longer

permitted to elect Economics I as part of their first year's work, it being deemed preferable that they should concentrate as far as possible upon their major subject in the later years of their work. More definite limitations have been placed upon the work of our freshmen students. A certain amount of mathematics, modern language, English and history is required of all, and a year of laboratory science is expected to be a part either of the first or second year's work.

Assistant Professor Millis has been granted leave of absence for the year 1908-09 to take charge of the western division of the immigration investigation being conducted by a special commission at Washington. Assistant Professor Motley has charge of an investigation into the methods and effects of the relief work in housing sufferers in San Francisco after the earthquake of 1906. The funds for this investigation have been supplied by the Sage Foundation. It is regarded as in every way desirable and important that the department should identify itself so far as possible with public investigations of this kind.

ALLYN A. YOUNG,
Professor of Economics.

LAW

During the session of 1907-08 the teaching force of the department consisted of Professors Charles Henry Huberich and Frederic Campbell Woodward, Associate Professor Arthur Martin Cathcart, Assistant Professors Wesley Newcomb Hohfeld and Joseph Walter Bingham, and Instructor Charles Andrews Huston. Mr. John Slater Partridge, of the San Francisco bar, gave the course in Pleading and Practice III (California Practice).

At the close of the year, Mr. Hohfeld was promoted to an associate professorship; Mr. Huston, to an assistant professorship; and Mr. Bingham became a regular member of the faculty, with the rank of assistant professor.

The registration of students during the first semester was 279, of whom 24 were graduate, 236 undergraduate, and 19 special students. The registration of the second semester was 243, of whom 15 were graduate, 212 undergraduate, and 16 special students.

The courses of instruction given, and the enrollment in each, were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
[Entire Faculty].....	1. Elementary Law.....	3	138	69
Woodward ...	2. Contracts	3	83	62
Huberich	3. Criminal Law	4	...	70
Cathcart	4. Torts	5	103	...
Bingham	5. Property I.....	3	63	50
Hohfeld	6. Equity I.....	4	...	55
Huston	7. Agency	4	55	...
Hohfeld	10. Equity II (Trusts).....	4	20	...
Huston	11. Equity III.....	2	...	6
Huston	12. Insurance	3	17	...
Woodward	13. Partnership	3	...	7
Woodward	14. Persons	2	...	32
Cathcart	15. Pleading and Practice I.....	2	26	...
Bingham	16. Property II.....	2	36	23
Cathcart	17. Public Service Companies...	2	...	8
Cathcart	18. Quasi Contracts.....	3	...	13
Woodward	19. Sales	3	29	...
Huberich	23. Conflict of Laws.....	4	...	12
Huberich	24. Constitutional Law.....	3	14	12
Hohfeld	25. Evidence	3	16	8
Bingham	26. Mortgages	2	...	7
Cathcart	28. Pleading and Practice II....	2	...	18
Partridge	29. Pleading and Practice III...	2	...	17
Huston	30. Private Corporations.....	2	17	13
Bingham	33. Suretyship	2	22	...

During the summer of 1908, Professor Woodward gave the course in Quasi-Contracts, and Associate Professor Hohfeld the courses in Trusts and Suretyship in the University of Chicago Law School. Associate Professor Cathcart gave the course in Contracts at the University of California.

During the months of November, December and January, Professor Huberich was absent on leave in Australia, where he was engaged in an investigation of the commercial laws of the Australian States.

The total number of volumes in the Law Library on August 1, 1907, was 9345. During the period from August 1, 1907, to July 31, 1908, 2838 volumes were added. Of these, 2709 were acquired by purchase, 47 by gift and 82 by binding. One hundred volumes of duplicates were withdrawn and exchanged for other books. The net increase for the year was

2738 volumes. The total number of bound volumes in the Law Library on August 1, 1908, was 11,083.

Provision should be made for the preparation of a card catalog of the books in the Law Library. A librarian of the Law Library should be appointed, who, in addition to his labor in accessioning and cataloging books, should be able to assist students in their investigations. For this reason, it is desirable that a person with some knowledge of law should be appointed. Considerable appropriations are still necessary for the purchase of law books. The sets of American Reports are still incomplete, and the Library contains practically no Session Laws of the American States.

Provision should also be made for the appointment of lecturers on Mining and Irrigation Law, and in the near future an additional member of the regular teaching staff will be required. With the present instructing force, a number of important topics which should be given every year are now given in alternate years. Should an additional instructor be appointed, we can dispense with the services of the lecturer or lecturers on Mining and Irrigation Law.

It is recommended that arrangements be made for a series of lectures by members of the bench and bar. Such lectures will be of interest and value to the students, and will bring the Department of Law in closer touch with the profession. The efforts of the department should also be directed toward raising the requirements for admission to the practice of law in California and other Western States.

CHARLES H. HUBERICH,
Professor of Law.

GRAPHIC ARTS

The personnel of the department faculty was as follows: Arthur Bridgman Clark, associate professor; Mr. Robert Barthlow Harshe and Mrs. Chloë Leslie Starks, instructors; and Miss Maud Houston Lanktree, assistant.

During the year Mr. Harshe was promoted to the rank of assistant professor.

Mrs. Starks has been engaged in making colored drawings for use in illustrating a work upon the results of Luther Burbank's investigations.

During the second semester of the year, a room of the Old Studio building was fitted with benches and appliances for instruction in handicraft to advanced students. This course is an important addition in the preparation of teachers of drawing.

Report of the President

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The courses of instruction and attendance follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Starks	Elementary	2 to 4	39	23
Harshe	Elementary Head.....	3	7	16
Harshe	Advanced Head.....	3	13	12
Harshe	Color	4	8	8
Clark	Landscape	3	17	21
Clark	Lectures	2	79	..
Clark	Design	3	34	20
Clark	Journal	1	..	9
Clark, Harshe	Handicraft	2	..	16
Starks	Scientific Drawing.....	2	2	3
Harshe	Illustrating	3	6	6

A. B. CLARK,
Associate Professor of Drawing.

MATHEMATICS

The personnel of the department faculty was as follows: Robert Edgar Allardice, professor; Rufus Lot Green, professor; Hans Frederik Blichfeldt, associate professor.

In the second semester Dr. Manning of the Department of Applied Mathematics gave a course of lectures on the theory of numbers.

During the year the department acquired a number of models which have already proved useful in the teaching of several of the courses.

The courses given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Blichfeldt	1. Trigonometry	2	54	..
Blichfeldt	2. Solid Geometry.....	2	..	38
Green	3. Algebra	5	32	..
Green	4. Co-ordinate Geometry.....	5	..	22
Allardice	5. Determinants	1	4	..
Blichfeldt	7. General Course.....	3	26	23
Allardice	9. Calculus	3	9	8
Green	10. Adv. Co-ord. Geometry.....	2	7	6
Allardice	11. Adv. Calculus.....	3	9	..
Allardice	12. Theory of Functions.....	3	..	7
Blichfeldt	13. Non-Euclidean Geometry....	2	..	3
Blichfeldt	15. Differential Equations.....	3	6	2
Allardice	19. Reading Course.....	1	3	3
Blichfeldt	19. Reading Course.....	1	3	2
Allardice	21. Projective Geometry.....	2	3	2
Blichfeldt	24. Potential Functions.....	4	1	..
Manning	25. Theory of Numbers.....	2	..	3

R. E. ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS

The active teaching force of the department for the year 1907-08 consisted of Professor L. M. Hoskins, Assistant Professors W. A. Manning and S. D. Townley, Instructors J. D. Suter and Edward Jordan, and Acting Instructor C. F. Elwell. Mr. Elwell's appointment was for the first semester only, and Mr. Jordan's began with the second semester.

Assistant Professor Moreno was absent on leave, spending the year in Europe. During the year the following student assistants were employed: R. L. Daugherty, C. F. Elwell, A. F. Taggart, L. B. Reynolds.

As in previous years, the courses in mathematics required of all students of engineering made up the main part of the work of the department. It has been possible, however, for Assistant Professor Townley to offer courses in general and practical Astronomy, and an advanced reading course in Hydromechanics was conducted throughout the year by Professor Hoskins.

The courses given during the year are shown in detail in the accompanying table:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Elwell	A. Solid Geometry.....	2	36	...
Manning, Suter	B. Trigonometry	3	96	69
Suter, Elwell,				
Manning	1. First-year Mathematics.....	5	164	149
Manning,				
Suter,				
Townley	2. Calculus	3	127	101
Hoskins,				
Townley	3. Theoretical Mechanics.....	5	129	110
Townley	5. General Astronomy.....	3	13	...
Townley	5a. Practical Astronomy.....	3	...	32
Hoskins	6. Hydromechanics	2	2	2
Hoskins	3a. Hydraulics*	3	...	79
Hoskins	3b. Hydraulic Motors*	3	43	...

*Scheduled under Engineering.

L. M. Hoskins,
Professor of Applied Mathematics.

PHYSICS

The faculty of the Physics Department for the year 1907-08 consisted of Professor Sanford, Associate Professor Rogers, Assistant Professors Drew and Brown, and Laboratory Assistants Shirley Hyatt, George F. McEwen and Perley A. Ross. Messrs. E. S. Pridham and W. F. Crane were employed as mechanical assistants in the laboratory for one semester each.

Associate Professor Stearns, who had been absent on sick leave for three years, died on Oct. 21, 1907. His death has deprived the University of one of her ablest and most devoted teachers and a most loyal alumnus. Assistant Professor Rogers was promoted to be associate professor.

The registration of major students in Physics still continues very small. This is especially true of entering students. Of the ten major students in the department at the time of writing this report only two began their university course as Physics majors.

During the year covered by this report the facilities for teaching Physics were much improved, both by the repairs and improvements made on the buildings and by the appropriations made by the Board of Trustees for the purchase of apparatus. Some of this additional equipment was made necessary by the establishment of a pre-medical course in Physics to be given first in 1909-10.

The courses given in the department during the year with the attendance in each class are given below.

INSTRUCTOR	COURSE	Lecture Units per Week		Lab. Units per Week		Attendance	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Brown, Hyatt...	1. Dynamics	1	1	5	5	40	33
Drew, Ross. . . .	2. Electricity		1		3	..	18
Sanford, Hyatt...	3. Heat		1		2	..	6
Brown	4. Sound			2		6	..
Sanford, Ross...	5. El Optics			3	2	..	..
Drew, Hyatt . . .	6a Eng Phys	3		3		35	..
Rogers, McEwen.	6b Eng Phys. . . .		3		2	..	31
McEwen	7. Electricity	2		2		11	..
Brown	8. Mech. Meas				2	..	4
Rogers, Ross,							
McEwen	9 Elec. Meas	1	1	3	3	19	4
Sanford, Ross . .	10. Adv Optics				2	..	2
Sanford	13 Teachers' Physics..	1	1			3	3
Drew	14. Thermodynamics..		3			..	3
Drew	18. Electrical Theory...	3				3	..
Sanford	19. Orig Prob			2	5	..	2
Sanford	Special Reading. . . .					..	1

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY.

The teaching staff in the Department of Chemistry for the year 1907-08 comprised Professors John Maxson Stillman, Lionel Remond Lenox, Edward Curtis Franklin, Stewart Woodford Young; Associate Professor Robert Eckles Swain; Instructors James Pearce Mitchell, William Henry Sloan; Graduate Assistants Wm. G. Bateman, Dennis Robert Hoagland; Student Assistants Edward Waldo Rice, Lovell Langstroth, John Franklin Ellis, Claude Ferguson, Alexander Macbeth Cuthbertson, Robert Alton Jones, Elmer Rupel Weaver, Walter Henry Gardner.

Of these assistants, D. R. Hoagland held office during the first semester only; Claude Ferguson, during the second semester only.

The courses of instruction in Chemistry during the year 1907-08, and the attendance upon them, were as follows:

LECTURE COURSES.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Swain	1. General Inorganic.....	2	129	106
Mitchell	2. General Inorganic.....	3	32	26
Stillman	2. Principles of Chemistry....	3	36	27
Franklin	3. Organic Chemistry.....	2	31	25
Stillman	4. Industrial Chemistry.....	2	8	10
Stillman	5. History of Chemistry.....	2	6	...
Lenox	6. Qualitative Analysis.....	1	33	29
Young	8. Physical Chemistry.....	3	5	5
Young	10. Theories of Analytical Chemistry	1	...	21
Swain	11. Physiological Chem.....	2	4	3
Stillman, Franklin, Young	12. Seminary	1	9	10
			293	262

Lectures were also given as supplementary to the laboratory courses without separate registration by Professor Lenox, one hour per week in Assaying, and by Instructor Sloan, one hour per week on Quantitative Analysis.

LABORATORY COURSES.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Swain, Mit- chell, Cuth- bertson, Jones, Weaver, Gardner	A. General Inorganic.....	2	100	50
Lenox, Bateman	B. Qualitative Analysis.....	3	33	29
Franklin, Hoagland, Ferguson ...	C. Organic Preparations.....	3	6	14
Stillman, Sloan	D. Quantitative Analysis.....	3-4	33	19
Stillman, Lenox, Sloan	E. Mineral Analysis.....	3-4	8	5
Young, Langstroth...	F. Physical Chemistry.....	3-5	1	...
Swain	H. Physiological Chemistry, and Food Analysis.....	3	3	6
Lenox	J. Special Methods, Iron and Steel	3-4	3	3
Stillman	L. Sugar Analysis.....	4	1	...
Lenox, Rice...	N. Assaying	3	16	25
Various	Research and Theses.....	3-5	6	5
			<hr/> 210	<hr/> 156

In addition to those regularly registered, a number of students occupied desks each semester for removing conditions, or completing unfinished work previously registered for.

Instructor Alvin J. Cox, absent on leave for two years, has resigned to continue his work in the Bureau of Science of the Philippine Islands. Mr. Wm. G. Bateman, assistant in Chemistry for the past two years, has been appointed instructor in Analytical Chemistry for 1908-09.

Graduate Assistant D. R. Hoagland, A. B., Chemistry, '07, resigned his position at end of first semester, to take a position as chemist in the laboratory of the Agricultural Department of the University of California.

During the past year Professor Franklin has continued his studies on the electrical conductivity of liquid ammonia solutions; Professor Young continued his investigations upon the phenomena of supercooling and supersaturation.

Instructor Mitchell has continued the examination of the surface waters of the San Francisco Peninsula begun last year.

Instructor Sloan began a study of the electrical conductivity of solutions of mixed solvents, with coöperation of Professor Franklin.

Instructor W. G. Bateman carried on an investigation of the action of thallium salts upon the animal organism under the direction of Assistant Professor Swain. This study was extended to certain marine animals at the Marine Laboratory during the summer. Mr. D. R. Hoagland, working under direction of Professor Franklin, continued the work of Mr. H. D. Gibbs on the electrical conductivity of methylamine solutions.

Miss H. W. Severy, graduate student, made a study of a method for the quantitative determination of arsenic in animal and vegetable tissues, under direction of Professor Swain.

Mr. Lovell Langstroth was associated with Professor Young in his work on supercooling and supersaturation.

The more important needs for the immediate future are as mentioned in the report for the previous year; apparatus for the liquifaction of air, and for the study of reactions at low temperature; an improved water supply in the building with respect to settling or filtration before entering the sewer pipes; it is also greatly to be desired that a better quality of fuel gas can be obtained than the mixture of gasoline vapor and air now in use, which, while it is as satisfactory as such gas can be made, is short of the desirable heating power of a first-class laboratory gas supply.

In the matter of instruction, the appointment of Mr. W. G. Bateman to an instructorship has relieved the needs in the direction of analytical Chemistry instruction, but there still remains the desirability of the appointment of another instructor in general inorganic Chemistry to assist in the instruction and control of the class and laboratory work of the larger classes in the first year work.

J. M. STILLMAN,
Professor of Chemistry.

GENERAL BOTANY

The personnel of the department was as follows: Professor Douglas Houghton Campbell, Associate Professor George James Peirce, Assistant Professor Anstruther Abercrombie Lawson, Assistant, later Acting Instructor, Richard Morris Holman.

Before his return from a year's leave of absence, Assistant Professor Lawson was called, as Lecturer in Botany, to the University of Glasgow, Scotland. He felt, however, that, in justice to this University and to this department, he should return and carry his work through at least the first half of the college year. This he did, at considerable personal sacrifice. At the end of the first semester, however, he resigned and went

to Glasgow. Part of his work was necessarily dropped for the second semester, a part was assumed by Professor Campbell, in addition to what he regularly does, and the remainder was carried on by Mr. Richard Morris Holman, a recent graduate of this college.

Professor Campbell was authorized to secure the services of Dr. L. L. Burlingame, of the University of Chicago, as Dr. Lawson's successor, with the rank of instructor for the coming year, and Dr. Burlingame has accepted.

The courses of instruction offered by the department were as follows :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Campbell, Peirce, Lawson, Holman	1. Elementary	3	36	28
Campbell	2. Algae	5	6	..
Campbell	3. Archegoniatae	5	..	6
Campbell	11. Cytology	3	..	6
Campbell, Peirce	13. Investigations .....	.	1	..
Peirce	5 and 9. Physiology (Lab.)....	3	10	7
Peirce	7. Physiology (Lect.).....	1	26	..
Peirce	6. Elementary Bacteriology.....	3	..	2
Lawson	10. Histology	3	3	..

(With the exception of the lecture course above noted, all courses in this department are laboratory courses with one lecture a week.)

Professor Campbell has been principally engaged upon a further study of botanical materials collected in Ceylon and Java during 1906. Several papers have been published embodying the results of these investigations. Last summer a trip was made to the West Indies, and some important botanical material was secured, which it is hoped may be worked during the coming year.

Mr. H. B. Humphrey published during the past year a study of some of the California Liverworts, this being his thesis for the degree of Doctor of Philosophy, conferred upon him last June. He has since been appointed professor of botany at the Agricultural College at Pullman, Washington.

Associate Professor Peirce has worked up much of the material collected by Associate Professor Swain and himself on a tour of inspection of the great copper-smelting districts of the country (see last year's report), and one paper, ready for publication, is held back owing to the status of the smelter question in this immediate vicinity. It is a satisfaction to have had a part in at least delaying, if not in preventing, the

erection of a copper smelter on the shore of the Bay of San Francisco; for until it can be proved that such a smelter can be operated without the production of sulphur or other obnoxious fumes, the value of all property between here and San Francisco is in danger. Professor Peirce has also experimented with a new respiration calorimeter, which has proved to have many times the efficiency of those hitherto used in physiological laboratories.

It is a pleasure to record that the chief lack from which this department has suffered since the opening of the University has been supplied. An experiment house under glass is now in process of construction and will be in use within a short time. The plans were sketched by the department, and therefore call for a house especially adapted to local needs and conditions. We are looking forward with appreciative enthusiasm to using this long-needed addition to our equipment.

It is a pleasure to record also that the botanical society, composed of the students and officers of the department, has added another annual gift. This is a life-sized portrait of Linnæus, appropriately framed.

In this connection we should like to refer to the statement in last year's report that "there seems to be a growing demand for trained botanists in practical lines. . . . Men investigators and men experts in botany are now in demand, and we have no men for the positions of which we know." Furthermore, we are unable to retain men for as long as they wish to stay, to complete their training, for we can furnish them with no means of meeting their living expenses while completing their preparation for their professional careers. They leave us, either to earn money—delaying, if not preventing, the completion of their training—or to go to some other college where, by means of a scholarship or fellowship, they can pay a part or the whole of their expenses. In this way we lose men whom we should be glad to keep, and men who would be glad to come to Stanford University for a year or two of advanced study are unable to do so. Two or three small assistantships, costing altogether perhaps a thousand dollars a year, would enable us to keep and welcome these very desirable students and, at the same time, raise the standard and increase the efficiency of the department.

DOUGLAS H. CAMPBELL,
Professor of Botany.

SYSTEMATIC BOTANY AND FORESTRY.

The department staff for the year 1907-08 comprised Professor William R. Dudley, Assistant Professor Leroy Abrams, together with Mr. James I. W. McMurphy as laboratory assistant, Mrs. Olive A. Humphrey, herbarium assistant for the first semester, and Mr. Ernest G. Dudley, herbarium assistant for the second semester. The latter was engaged

during part of the time in enlarging for class illustration a series of photographs of trees and of plant societies from negatives belonging to the head of the department.

Professor Dudley, having taken no sabbatical leave since 1892, was absent one year and a half, and resumed his University work in January, 1908. He brought back plant specimens and geographical photographs from Syria, Egypt, Northern Italy and the Southwestern United States.

Dr. Harry B. Humphrey, acting instructor for 1907-08, but on leave of absence, to assist in preparation of the work of Luther Burbank for publication, had charge of the botanical instruction at the Marine Laboratory in the summer of 1908, and then accepted the professorship of Botany at the Washington State Agricultural College. His unusually broad training and experience will make him a valuable instructor in any university.

The following courses of instruction were given in 1907-08:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Abrams, McMurphy..	2. Fungi	4	12	..
Abrams	3. Spermaphyta	4	..	13
Dudley	5. Geographical Dist. and Forest Botany	3	..	18
Abrams	6. Compositae	2	5	..
Dudley, Abrams	7. Advanced Work.....	2 or more	4	14

Assistant Professor Abrams has continued his work on the Southern California plants, and, with Ernest A. McGregor (assistant for 1908-09), made a long summer exploration from the Ventura Mountains to Mt. San Bernardino, chiefly on the desert slopes, bringing back valuable plant specimens and photographs.

Mr. McMurphy has continued his investigation of the *Madiaceae* and their distribution.

Miss S. G. Stokes, an early graduate of this department, who began, while an undergraduate, a similar study on another peculiarly western group, *Eriogonum*, as to its geographical origin and development, has perseveringly continued this study, partly under our direction, in field and herbarium, for over twelve years, and her extensive researches will soon be published by the Carnegie Institution as an evolutionary study.

Mr. A. C. Herre has continued his work on the lichens of the Santa Cruz Mountains, and incidentally of California as a whole, and in 1907 spent some months in Vienna with Professor Zahlbruckner, the chief authority on lichens.

Professor Dudley has further investigated the aquatic vegetation of this peninsula and the origin of the lakes containing it.

Through the aid of the additional help granted by the Trustees during the past year, the herbarium has been increased by the addition of approximately 2500 mounted sheets.

An inventory taken in October, 1908, shows that there are about 25,000 sheets of mounted plants on our shelves. We are preparing to greatly add to this from the private collections of the head of the department, made during fifteen years past, but remaining largely unmounted from lack of help. We are beginning to mount also a special local herbarium of this peninsula, after a long contemplated plan.

The card catalogue of new species and new plant names (chiefly American), grown to considerable proportions, is absolutely indispensable to us and is useful to the botanists of the Pacific Coast.

At the present time a majority of all the men registered as majors in botany have expressed a desire to enter the profession of forestry. One graduate, Mr. Ernest G. Dudley, is now in the Yale School of Forestry, and others are preparing to follow unless a professorship of Forestry is established here. We have laid down a course *preparatory* to forestry, but we cannot train men properly for the profession itself without the aid of technical foresters as instructors, who could well be attached for the present to this department. With such addition a considerable number of students, alert and ambitious men would come to Stanford; and in the establishment of such a course of instruction we should be fulfilling our highest function, namely, our duty toward the State and the United States. The graduates of eastern forest schools are no doubt well trained in eastern conditions and know eastern trees. When coming here they must inevitably and do make mistakes concerning western tree life, and in dealing with western lumber and grazing interests. The great forest reserves are all in the west, and if we had a forest school at Stanford, beside our men to the manner trained, we should also draw here for further study, eastern forest school graduates. The demand for trained foresters is far greater than our University authorities probably realize. Two years ago the United States Forester said that: "if we were to add a hundred men a year to our present force (about 200 trained foresters) and each man lived and worked to the end, it would take about one hundred and fifty years to get our national forests manned in the way Prussia mans hers. One of the very first demands of the present situation is for men."

WILLIAM R. DUDLEY,
Professor of Botany.

PHYSIOLOGY AND HISTOLOGY

The teaching force of the department for the year 1907-08 consisted of Oliver P. Jenkins, professor; Frank Mace McFarland, associate professor; and James Rollin Slonaker and Clara S. Stoltenberg, assistant professors; Frank Walter Weymouth, laboratory assistant.

The following table shows the courses given during the academic year. The numbers by which the courses are designated are the same as those used in the Register for 1907-08, to which reference may be made for explanation of the character of the courses:

INSTRUCTOR	COURSES	Unit Hours	Hours per Week		Attendance	
			Lecture	Laboratory	1st Sem.	2nd Sem.
Jenkins, Slonaker, Weymouth	1. Gen. Anatomy and Physiology	6	1	5	75	54
Slonaker	2. Physiology of Blood Circulation, Muscle..	3	1	5	21	..
Slonaker	3. Physiology of Digestion, Respiration, etc.	3	1	5	..	21
Stoltenberg ...	4. Structure of the Nervous System.....	3	1	5	12	..
Stoltenberg ...	4b. Structure of the Nervous System (Adv.).	2	.	6	2	..
Stoltenberg ...	5. Histology of the Nervous System.....	3	1	6	10	..
Jenkins	6. Physiology of Nervous System and Sense Organs.....	3	1	5	..	12
Jenkins	8. Advanced Physiology..	3	.	9	..	1
McFarland	9. Histology	6	1	6	19	19
McFarland	10. Histogenesis	2-3	1	6-9	2	..
Stoltenberg ...	13. Mammalian Anatomy..	2-5	2	6-15	..	8
McFarland	14. Advanced Histology...	3-4	.	9-12	3	3
Department ...	15. Journal Club.....	}	.	...	14	11
Department ...	16. Seminary					
McFarland	17. Research in Histology.	6-14	.	9-12	3	4
Jenkins	17. Research in Physiology	..	.	...	1	1

Dr. McFarland has completed his report on Opisthobranchiate Mollusca of Brazil; also his check list and report of the Nudibranchiate Mollusca of the Woods Hole Region. These papers are ready for publication.

Dr. Slonaker has continued his study of the normal activity of the white rat from birth to natural death; and the effect of different foods

upon the activity and growth of this same rat; he has also been investigating cerebral localization (the results being in press); and has published a description of an apparatus for recording the activity of small animals.

Assistant Professor Stoltenberg has continued her investigations on the nerve tracts in the brain of rodents.

Research work by students in the department has been in progress as follows:

Mrs. Olive H. McFarland, on the anatomy and histology of *Phylla-*
plysia;

Bertha A. Wiltz, on spermatogenesis in insects;

Harriet A. Twomley, on spermatogenesis in the hag fish, *Polistotrema*
dombeyi;

C. S. Kroeck, on the spermatogenesis in the spermophile.

OLIVER P. JENKINS,
Professor of Physiology.

HYGIENE

The personnel of the department for 1907-08 consisted of Associate Professor W. F. Snow, Instructor R. R. Long, Acting Instructors Florence Bolton and Vera Townsend, and Assistant Ella Russ. The department is also provided with five student assistant positions in the gymnasia. These positions were filled by J. F. Chapman, E. G. McCann, A. F. Meston, J. R. Dillon and Miss O. L. Streeter.

The tabulated statistics of the department work for the year are given in the accompanying table:

INSTRUCTOR	COURSES	Hours per Week.	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Long. Town- send	GENERAL COURSES.				
	1. Personal Hygiene:				
	a. Gymnasium.....	3 Lab.....	1	244	229
Snow	b. Laboratory.....	3 Lab.....	1	34	41
	2. Public Health.....	2 Lect.....	2	137	105
		3 Lab.....	1	30	21
Snow	DEPT. COURSES.				
	3. Indus. Hygiene....	9 Lib.....	3	35	...
	4. Physical Training.				
Long, Bolton..	Methods	3 Lab.....	1	6	8
	5. Epidemiology	9 Lab.....	3	...	28
	6. a. Hygenic Lab.				
Snow	Technique	9 Lab.....	3	9	...
	b. Sanit. Survey...	9 Lab.....	3	...	7
	Special Work.....	Lab.....	1-4	4	3

SUMMARY.

	Enrollment	
	1st Semester	2d Semester
Lectures	137	105
Laboratory	118	108
Gymnasium	244	229
Total	499	442

During the year the University Council was requested by the Board of Trustees to consider the advisability of granting degrees in Hygiene. The Council reported against the granting of degrees, but in favor of continuing the department as a member of the major department system of the University.

Instruction in Hygiene stands today in our universities where the pure sciences stood in the scheme of education twenty-five years ago. Its subject matter is still presented through poorly organized lectures, without adequate textbooks and with no appropriate equipment for laboratory courses. Even in the medical schools less than forty hours out of a total of four thousand working hours are assigned to Hygiene. These defects are slowly being remedied by a small group of workers scattered over the United States, who see clearly the foundation work that must be done. American universities must play their part in educating the citizen, the physician, and the health officer, in the principles of preventive medicine.

The established work in Hygiene at Stanford University provides general education courses for the students of all departments, and pre-medical courses for those students who intend to enter the practice of medicine, or accept staff positions with public health departments. At the proper time post-medical courses should be established for the technical preparation of men who intend to enter the public health service of the country as state and municipal administrative officers.

The appropriation made recently for out-door fields and for additional gymnasium assistants will make possible the realization during the coming year of the department's plan for enlarging its physical training work.

Dr. Snow was granted leave of absence during the summer to attend the International Tuberculosis Congress, held in Washington in September, 1908.

Instructor H. W. Chappel's leave of absence terminated August 1, 1907. Mr. Chappel decided to remain in Cornell University to complete his medical education.

WILLIAM FREEMAN SNOW,
Associate Professor of Hygiene.

ZOOLOGY

The faculty of the department consisted of Professor Charles Henry Gilbert, Associate Professors George Clinton Price and Harold Heath, Assistant Professor John Otterbein Snyder, Curator Edwin Chapin Starks, Instructor Walter Kendrick Fisher and Assistant Charles Victor Burke.

The following courses of instruction were given:

INSTRUCTOR	COURSE	Hours per Week		Attendance	
		Lect.	Lab.	1st Sem.	2nd Sem.
Price	1. Elementary Zoology.....	1	6	51	43
Heath	2. Invertebrate Anatomy....	1	6	16	13
Heath	3. Invertebrate Embryol....	1	5	..	6
Heath	4. Invertebrates (Adv.)....	.	6 to 9	7	3
Fisher	4a. Invertebrates (Class.)....	.	6	..	1
Snyder	5. Vertebrates (Class.).....	1	6	8	9
Snyder	6. Comp. Anat. of Verte....	.	9	7	8
Price	7. 8. Vertebrate Embryol...	1	5	27	..
Price	9. Foetal Anatomy.....	1	5	..	4
Starks	10. Ichthyology .....	.	6 to 9	5	5
Gilbert	11. Ichthyology (Adv.).....	.	6	1	1
Gilbert	12. Journal Club.....	.	.	4	4
Snyder	13. Vertebrates (Adv.).....	.	6	1	1

During a part of the fall semester, Professor Gilbert was absent on sick leave. Instructor Fisher was absent on leave without pay for the first semester, pursuing certain investigations under the auspices of the United States National Museum. He examined the collections of starfishes of the National Museum, Yale Museum and the Museum of Comparative Zoology, and conducted bibliographic researches in all available libraries, with the purpose of preparing a list of the genera of starfishes and holothurians with their type species, and completing the bibliographic portion of "A Monograph of the Starfishes of the West Coast of North America." He secured from the National Museum a large and most valuable collection of invertebrates for the Zoological Museum of the University, and on his return began the cataloguing of the invertebrate collections.

Professor Gilbert continued his studies of the deep-sea fishes of the California province and the northwest Pacific, and during the summer months undertook some investigations for the U. S. Bureau of Fisheries of the relations between the steelhead and rainbow trout.

Associate Professor Heath completed his monographic report on the solenogastres from the North Pacific, and has commenced a similar work on Atlantic species.

Assistant Professor Snyder has continued his studies of the fresh water fishes of California and the shore fishes of Japan. Mr. Starks has been engaged in further researches on fish osteology and relationships; he has also devoted much time to repairing the damage to our collections caused by the earthquake. Upwards of a thousand bottles and jars had been broken, many of them containing invaluable types and cotypes of species. In so far as it has been possible to reassemble these, with their data, that has now been done.

Investigations by students in the department have been carried on as follows: New genera and species of fishes from Bering Sea, by C. V. Burke; the decapod crustacea of Monterey Bay, by F. W. Weymouth; two new flat worms from the California Coast, by W. F. Derby; the molluscan coelom, by Rose M. Higley; the anatomy of the gastropod, *Gadinia reticulata*, by Marguerite Hyatt; new cotylean polyclads from the west coast of the United States, by E. A. McGregor; the anatomy of the lamellibranch, *Mytilimeria conradi*, by Margaret Ogier; a new parasitic gastropod from Japan, by Josephine L. Randall; the development of the gonad in the limpet, by Ola L. Rowell.

The equipment of the department has been increased during the year by additional compound microscopes and the accession to the library of complete sets of the systematic part of the *Zoologischer Jahrbuecher* and the zoological part of the *Annales des Sciences Naturelles*.

The regular session of the Marine Biological Laboratory at Pacific Grove during the summer of 1908 was under the direction of Associate Professor Price. Courses were given by Associate Professor Price, assisted by Mr. F. W. Weymouth, by Assistant Professor J. O. Snyder, and by Dr. H. B. Humphrey of the State Agricultural College of Washington. Forty-five students were in attendance taking regular courses, and in addition there were five persons carrying on independent investigation.

CHARLES H. GILBERT,
Professor of Zoology.

ENTOMOLOGY AND BIONOMICS

The faculty of the department in 1907-08 was composed of David Starr Jordan, lecturer; Vernon Lyman Kellogg, professor; Mary Isabel McCracken, instructor; Rennie Wilbur Doane, instructor and curator; Mary C. Dickerson, acting instructor; Bertha A. Wiltz and W. F. Derby, assistants. The number major students was ten, of whom two were graduate students. The courses given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
McCracken ...	1. Elementary Ent. (Lab.).....	3	22	1
McCracken ...	2. Morphol. and Physiol. of Insects (Lab.).....	3	...	7
McCracken ...	3. Class. and Develop. of In- sects (Lab.).....	3	...	2
Doane	4. Econom. Ento. Coccidae (Lec. and Lab.).....	2 or 3	1	...
Doane	5. Orchard and Forest Insects (Lab. and Field).....	2 or 3	10	6
Kellogg	6. General Entomology (Lect.)..	1	...	41
Kellogg	6a. Insects and Diseases (Lect.)..	1 or 2	...	37
Kellogg	7. Advanced Work (Lab.).....	2 or 5	4	3
Jordan, Kellogg, Dickerson ...	8. Organic Evolution.....	1 or 2	133	116
Kellogg	9. Variation and Heredity.....	2 or 5	1	...
Kellogg	Special Research, Grad. (Lab.)..	.	2	1

Professor Kellogg left on April 1st for leave of absence in Europe, and his courses were completed by Instructors McCracken and Doane.

At the request of certain cocoanut planters, Instructor Doane spent the months of July and August in Tahiti, and other South Sea Islands, investigating the serious outbreak occurring there of the cocoanut scale. He was able to point out and help distribute the natural enemy of the pest.

The researches carried on during the year by members of the department were: Professor Kellogg, in heredity and variation in the silk-worm moth, *Bombyx mori* (eighth year); in determinate variation in *Diabrotica* (seventh year). By Instructor McCracken, in the heredity of sporting melanism and bivoltinism in silk-worms (fourth year); in *Melasoma* (continued), and studies in *Psocidæ* and *Coniopteryx*. By Instructor Doane, in new North American *Tipulidæ* (several papers published); a study of the fleas taken in connection with the plague

work in San Francisco, and of the species inhabiting rats, squirrels, etc., on the Campus (results published); and studies on the insects of the Society Islands. By graduate student Smith, studies in the family Aviculariidae; by student D. T. Fullaway, studies on Ceroputo; and by student F. X. Williams, studies on the pine-pitch Diplosis. Publications by members of the department are mentioned in another connection.

Graduate students received appointments as follows: D. T. Fullaway, Assistant Entomologist, Agricultural Experiment Station, Hawaii; C. P. Smith, Assistant Professor Entomology, Agricultural Experiment Station, Logan, Utah; F. X. Williams, Assistant Quarantine Inspector, State Horticultural Commission, San Francisco.

The conditions during the past year have emphasized more than ever the need of a vivarium or insectory for the development of certain lines of work, particularly for the study of the life-history and development of insects in connection with the economic work, for experimental studies in heredity and for the study of the relation of insects to diseases.

The principal additions to the equipment of the department made during the past year were insect and supply cabinets, a copying camera, lantern slides, photographs (made in laboratory), and laboratory aquaria. The principal books added were the "Annals de la Société Entomologique de Belgique."

Under the gardener's supervision a small mulberry plantation was started in the arboretum to furnish food for the silk-worms.

RENNIE W. DOANE,
Instructor in Entomology.

GEOLOGY AND MINING.

The department faculty consisted of Professor J. C. Branner (absent on sabbatical leave), Associate Professor J. F. Newsom, Assistant Professors D. A. Lyon, A. F. Rogers and J. F. McClelland, and Instructors L. W. Bahney and G. I. Finlay, and Assistants R. S. Kellogg, F. W. Turner, J. R. Pemberton, E. K. Soper, A. D. Hughes and B. Prescott.

Professor Newsom was absent during September and part of October, pursuing his investigations of gold mining properties in British Columbia.

Professor Lyon was absent on leave during the second half of the year carrying on investigations in the electric smelting of iron ore at Heroult, Shasta County, California. J. F. McClelland was appointed assistant professor in the department in December.

The following courses were given during the year 1907-08:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Newsom	1. Elementary Geology.....	3	114	...
Newsom	2. Economic Geology.....	2	...	60
Newsom, Hughes, Prescott	3. Topographic Geology.....	4	...	11
Finlay, Soper, Pemberton...	4. Field Geology.....	5	...	16
Rogers, Turner	5. Mineralogy	3	40	36
Rogers	6. Petrography	3	20	18
Smith	7. Systematic Paleontology.....	4	10	25
Smith	8. Paleontology (investigation).	2-5	2	2
Newsom, Lyon	10a. Mining	4	26	...
Newsom, McClelland..	10b. Mining	3	...	...
McClelland ...	10c. Mine structure design.....	3	...	17
Bahney	11a. General Metallurgy.....	4	...	16
Bahney, Kellogg.....	11b. Metallurgy (Lab.).....	2	...	29
Lyon, Kellogg.	11c. Metallurgy of constructive materials	2	44	...
Bahney	11c. Metallurgy (Special).....	3-5	22	9
Rogers	12a. Crystal Morphology.....	2	...	2
Rogers	12b. Advanced Mineralogy.....	3	1	1
Smith	13. Advanced Paleontology.....	2	...	7

CHANGE IN COURSES: During the year a schedule covering five and one-half years' work for students in mining and metallurgy was adopted by the department. Hereafter all students who enter in mining and metallurgy will be required to take this course.

The chief additions over our previous four years' course are: Law, 4 to 6 hours; Language, 6 hours; English, 6 hours; Economics, 6 hours; History, 6 hours; courses in mining and ore dressing, 20 hours.

Exceptionally good students will be able to complete the course in five years, others will require five and one-half years. The degree of Mining Engineer will be offered upon completion of the five and one-half year course. This course will become fully operative in 1912, when the first students who entered upon it will receive their degrees.

When this course becomes fully operative, all mining students will be required to spend at least one summer in actual mining work before graduation. During the past summer ten of our third-year students spent the summer months in such work in seven of the more important mines of the western United States.

Two new courses have been offered in mineralogy during the year; one in advanced crystal optics, and one on the origin and occurrence of minerals.

REMOVAL TO NEW QUARTERS: During the summer vacation the library, collections and some of the offices of the department were moved into the new geology building, at the southwest corner of the outer quadrangle.

The building formerly occupied by metallurgy being required for the department of mathematics, and the new laboratories not being ready, the metallurgy laboratory was moved partly to the new laboratory and partly into the building (rooms 80-84), formerly occupied by geology; the work in petrography was also moved into the building containing rooms 80 to 84.

The new metallurgical laboratories are being fitted up, and are partially in use at present. A small laboratory is also being fitted up for the use of the instructor and advanced students in the analyses of minerals and rocks.

The paleontological collections were moved from the building west of the church to the second floor of the new geology building.

Furniture was also ordered for the new building, and in the near future it will be possible to open up the geological collections which we have hitherto been obliged to keep in boxes for want of room and furniture.

LIBRARIES: Mr. Branner's private library is still used as the departmental library, and is now in the library room 333, on the second floor of the new building. It contains over 22,000 books, pamphlets and maps, and is constantly being increased. Room 338 has also been set aside for the mining library, in which will be placed the more important works on mining from both Mr. Branner's and Mr. Newsom's libraries. The books on metallurgy are at present in Professor Lyon's office, in room 82, and the books on mineralogy are in Professor Roger's office, room 362.

ADDITIONS TO EQUIPMENT: The following materials have been added to the departmental equipment by gift:

In geology, mineralogy, paleontology: Many important additions were made to the collections of rocks, minerals and fossils during the year. These additions come from the following sources:

1. Many boxes of fossils, minerals and rocks were sent in by the parties doing field work under Professor Finlay on the Tesla sheet.

2. Messrs. W. H. Ochsner, R. B. Moran and A. E. Preston have sent in many boxes of Tertiary and Cretaceous materials collected in the course of their work upon the petroleum bearing rocks of California.

3. Mr. Frank L. Hess, a graduate of the department of geology, and now an assistant in the U. S. Geological Survey, has from time to time sent the department specimens of minerals and ores of much value for purposes of instruction in mineralogy and in economic geology.

4. A large number of boxes of fossils, minerals and rocks were brought from South America by Mr. Branner, and have been added to the departmental collections.

5. Professor A. F. Rogers visited the zinc and lead regions of Missouri and Kansas during the summer and there collected much material that is available for blowpipe work and for the study of mineralogy in the department; an exhibition collection of minerals is being accumulated for the use of students and visitors.

6. The most important addition to the collection is the donation made to the department by Hon. Delos Arnold, of Pasadena, California. This collection consists of more than sixty thousand specimens of fossils, shells, minerals, corals and ethnologic specimens. It is a gift to the department of geology of the University and is made on condition that the collection be kept intact and that it be properly cared for, labeled and exhibited. It represents the work of a lifetime by an enthusiastic student and collector, and is one of the finest private collections of fossils in the United States. It is especially valuable on account of the large amount of recent and Tertiary material collected on the west coast of North America. For the use of students of the geology of California and the west coast generally, it is without an equal.

The collection was begun by Mr. Arnold in 1860, when he lived in the State of Iowa, and besides the constant work done upon it by him, it has received many acquisitions up to 1908, and it is stipulated by the donor that still further additions may be made to it in the future. Most of the minerals were collected in Colorado in the seventies, and in Arizona in the eighties.

The collection of recent marine shells so necessary in the study of Tertiary geology is one of the finest in this part of the country, and it embraces a large amount of material collected on the Atlantic coast from Maine to the West Indies. It includes all of the common forms both of shells and corals and a large number of the rarer ones collected by Mr. Arnold at Jacksonville, Key West, St. Augustine and New Orleans. Of the west coast it embraces collections made by Mr. Arnold and his son, Dr. Ralph Arnold, almost continuously all the way from Puget Sound to Panama, and includes both the littoral species and the deeper water forms obtained by dredging. There are also a good many shells obtained by exchange and purchase from Europe and other parts of the world, and especially from the Mediterranean Sea, from the coasts of France, and from the Hawaiian Islands.

The fossils, however, form the most important part of the collection. These embrace Paleozoic, Mesozoic, Tertiary and Pleistocene forms. The Paleozoic materials include one of the best collections ever made from the famous crinoid-bearing Kinderhook beds (Carboniferous) at Le Grand, Iowa. Many of these fine specimens are types and are figured in Wachsmuth and Springer's monograph on the crinoids. Of especial

interest in connection with the collection of fossils, crinoids is a beautiful specimen of a living crinoid from the China Sea.

The Mesozoic materials of the collection come from different parts of North America, notably from California, and the Dakotas, and from Europe.

The collection of Tertiary and Pleistocene fossils is the best of the kind in existence, and, in many respects, it is unique. It includes a number of types and a large number of specimens that have been figured in publications upon the Tertiary and Pleistocene of the Pacific Coast, notably in the papers published by Dr. Ralph Arnold, the distinguished son of the donor. The task of getting together this particular part of the collection has occupied Mr. Arnold's time for twenty-two years. At San Pedro, one of the richest and most important localities where collecting had been done, the collecting ground has been encroached upon by the sea and carried away for ballast until the fossil-bearing beds have been destroyed, and similar collections thus made impossible. There are, besides, full collections from all the known Pleistocene localities from Puget Sound to Scammon's Lagoon in Lower California. The collections from Santa Barbara and San Diego are large and especially fine. There is also much valuable material obtained by exchange from Dr. Cossman and Jean Miguel of France, and from Dr. Koto of Japan. Representative Tertiary and Pleistocene materials of the eastern United States received from Professor Gilbert D. Harris of Cornell University, from T. H. Aldrich of Birmingham, Alabama, from the Chicago Academy of Sciences, and from many other persons and institutions, are also included in the collection.

It is not possible to state exactly the money value of such a collection of natural history materials. If it were possible to buy such things in the market, it would probably cost anywhere from fifteen to twenty thousand dollars. Such a collection, however, is not to be had at any price. It is one of the most valuable gifts ever made to the University, and one of the most useful.

The new exhibition cases in the geological department will be used for the display of the collection. It will occupy part of the large museum on the ground floor, adjoining the geological lecture room. It will be kept together, and will be known as the "*Delos Arnold Collection*."

The removal of the department into the new building at the southwest corner of the outer quadrangle will make it possible for the collections that have been accumulated since the first year of the University to be opened and made available for study and exhibition. Hitherto the lack of floor space and of the necessary cases and drawers has made it impossible to even open the boxes containing all these collections, while the impossibility of using the materials has deterred our graduates and other friends from presenting us valuable specimens.

IN MINING the following materials have been added by gift:

A complete set of illustrative material on explosives from the E. I. Du Pont de Nemours Powder Co.

Wire cable sample boards from the Trenton Iron Co., John A. Roebling & Sons, and the A. Leschen & Sons Co.

Diamond drill parts from the Sullivan Machinery Co.

Drill steel samples from: International High Speed Steel Co., Eureka Drill Steel Co., Braeburn Steel Co.

A Murphy air hammer drill with air feed, bits, etc., from C. T. Carnahan Manufacturing Co.

Car wheel and axle from Sanford Day Iron Works.

Track, switch and turn-table (loaned), from Arthur Koppel Co.

About 135 detailed blueprints of mining machinery and equipment from various mining machinery manufacturers.

The following materials have been added to the departmental equipment by purchase:

A large number of fossil species to enlarge the teaching collection; and also noteworthy additions from Krantz of Bonn, Germany, to amplify the illustrations of European fossil faunas, were purchased during the year. The set of Zittel's wall charts has been completed, and that of Keller's restorations of extinct animals was added to the equipment for teaching. A special collection of minerals needed for the work in mineralogy has been provided.

SCIENTIFIC AND TECHNICAL WORK: Mr. Branner spent the year on sabbatical leave in Brazil and other parts of South America. He was accompanied by one assistant, Roderic Crandall. They landed at Bahia, and went from there into the interior. Their work was chiefly confined to the states of Bahia, Sergipe, Alagoas and Pernambuco; but other states were also visited. They mapped and worked out the general geology of an area of about seventy thousand square miles. The region studied included nearly all of the district from which the carbons or black diamonds of commerce are derived. One of the most important results of the work was the discovery that in this region of droughts the geology is favorable to the finding of an abundance of underground water. After finishing his reports to the Brazilian government, Mr. Branner went to the Argentine Republic, where he visited the city of Mendoza, that was destroyed by earthquake in 1851. He then went to Valparaiso to observe the effects of the earthquake at that city in 1906. After visiting the nitrate deposits near Iquique, in Chile, he went to Peru and thence to Ecuador, and Panama. From this last place he went to Jamaica, to see the effects of the earthquake there, and thence returned to New York, reaching the University in May of the present year.

Mr. Smith has continued his investigations of the Mesozoic stratigraphy of the West Coast. He spent the summer in stratigraphic studies in the Mesozoic of eastern Oregon, for the U. S. Geological Survey.

Mr. Newsom spent the early part of the fall in the investigation of gravel deposits in the Cariboo district, British Columbia. During the latter part of the year he examined and reported upon other mining properties, in California.

Mr. McClelland examined and reported upon mining properties in northern California, Utah and Nevada. During April he gave a series of six lectures in Mining at Yale, under leave of absence from our Board of Trustees.

Mr. Lyon has continued through the year his work on the electric smelting of iron at the University and at Héroult, in Shasta County.

Mr. Rogers has investigated the new California gem mineral, benitoite, and has found that it is one out of the three missing forms of the 32 mineral classes. During the summer he was engaged in collecting minerals for the University Geological Survey of Kansas, and collected also an excellent series of minerals for our University from Utah, Colorado, Missouri and New York. He is now working on a paper describing minerals from the Mt. Hamilton region.

Mr. Bahney spent the summer in the preparation of specifications for furniture and other equipment for the new metallurgy laboratory, and is installing the equipment in the new building.

The following students have been engaged in original investigations:

Mr. W. H. Ochsner has continued his studies of the living and fossil molluscan faunas of the Galapagos Islands, and on the Tertiary stratigraphy and paleontology of the oil regions of California.

Mr. R. V. Anderson has been engaged in studying the Tertiary paleontology of the Coast Ranges of California.

Mr. H. R. Moss has begun a series of studies in the development of Carboniferous ammonoids.

PUBLICATIONS: Those by members of the department appearing during the year are noted in another connection.

The following papers by students in the department have appeared: By MR. PRESCOTT: An article upon the occurrence of the rare mineral ilvaite in Shasta County, California (Am. Journ. of Sci.), and a paper upon The Occurrence and Genesis of the Magnetite Ores of Shasta County, California. (Economic Geology.) By MR. F. GRINNELL: A paper on the fossil insects of California.

POSITIONS FOR STUDENTS: Roderic Crandall, who accompanied Mr. Branner to South America, was appointed geologist to the Brazilian government and remained in that country to continue his work on the geology of the interior of Brazil. H. T. Beckwith, '07, was employed by a petroleum company to study the geology of the oil fields of California, but was later engaged to carry on geological work in Pennsylvania. B. Prescott is in Honduras, where he is working and mapping the economic geology of the holdings of a mining company. E. K. Soper has been appointed instructor in economic geology at Cornell University. Donald

Steel is an assistant in the mining department at Stanford University. A. D. Hughes was made assistant in topographic geology during the summer. He is now doing geologic and engineering work in the employ of a mining company at Oroville, Calif. G. W. McDaniel is working in the Camp Bird mine, near Ouray, Colorado. C. L. Severy is in the employ of a mining company in Mariposa County, California. W. H. Ochsenr has been in the employ of an oil company and has spent the year working on the oil geology of California.

J. F. NEWSOM,
Associate Professor of Mining.

CIVIL ENGINEERING

During the year 1907-08 the teaching force of the department consisted of:

Professors Charles D. Marx, Charles B. Wing and Leander M. Hoskins; Instructors John H. Foss and Frederick H. Fowler, and a number of student assistants. Associate Professor J. C. L. Fish continued absent during the year.

The courses listed below were given in the Department of Civil Engineering:

INSTRUCTOR	COURSE	No. of Credit Hours	Number of Students	
			1st Sem.	2nd Sem.
Foss and Assistants.....	1a	1	143	5
Foss and Assistants.....	1c	1-4	179	98
Foss, Fowler and Assistants..	4a	5	65	31
Foss, Fowler and Assistants..	4c	2	12	..
Foss, Fowler and Assistants..	6a	5	..	54
Wing and Assistants.....	2a	5	76	..
Wing and Dunbar.....	8a	3	19	..
Wing and Dunbar.....	8c	5	..	18
Wing	9	5	..	19
Hoskins	3	3	..	75
Hoskins	3c	3	40	..
Marx	12	5	21	..
Marx	13	5	..	19
Marx	Special Course	3	..	15

The work has progressed satisfactorily. As two members of the department were still serving on the Commission of Engineers for the reconstruction of the buildings, no definite plans for the development of the department could be worked out. Suggestions have been made to the Board of Trustees looking to the erection of laboratories for the work in mechanics, of materials and in hydraulics. When certain changes contemplated by the Trustees are made, one building suitable for a mechanics of materials laboratory will become available. A building similar to the new forge and foundry building will, however, have to be built for the hydraulic laboratory. We hope to present the plans through you to the Trustees during the current year.

CHARLES D. MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING.

The teaching force in the department for the year 1907-08 was as follows: W. F. Durand, professor of Mechanical Engineering; G. H. Marx, associate professor of Machine Design; W. R. Eckart, assistant professor Experimental Engineering; L. E. Cutter, instructor in Drawing; C. N. Cross, instructor in Experimental Engineering; E. P. Lesley, instructor in Mechanical Engineering; E. J. Stanley, instructor in Wood-Working and Pattern Making; J. B. Liggett, instructor in Foundry; T. J. Palmateer, instructor in Machine Shop; R. H. Harcourt, instructor in Forge Shop.

During the first semester, 1112 student credit hours of instruction were given by nine instructors, or an average of 124 per instructor. The similar figures for the second semester are a total of 1339 student credit hours, and an average per instructor of 149.

These numbers are obtained by multiplying the number of credit hours in each course by the number of students attending such course, and they thus serve in a rough way to show the total bulk of instruction given and the average per instructor.

The classes taught and numbers in attendance are shown by the following tabular presentation:

INSTRUCTOR	COURSE	Kind of Work	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Stanley	1a, b, Wood Shop.....	Shop	1-3	79	66
Harcourt	1c. Forge	Shop	1-3	36	61
Liggett	1d. Foundry	Shop	1-3	20	31
Palmateer	1e. Machine Shop.....	Shop	2-5	37	40
Cutter	2. Drawing	Drawing	2	59	69
Marx, G. H....	3a. Design	Lecture	3	12	29
Marx, G. H....	3b. Design	Drawing	2	12	29
Marx, G. H....	3c. Design	Drawing	1	..	23
Marx, G. H....	4. Design	Lec. & Draw.	4	16	14
Marx & Cutter.	5. Design	Lec. & Draw.	3	8	7
Durand	6. Heat Engines.....	Lec. & Draw.	3	86	48
Durand	7. Thermo-dynamics...	Lecture	1	..	9
Eckart & Cross	8a. Experimental Eng..	Laboratory	3	..	47
Eckart & Cross	8b. Experimental Eng..	Laboratory	3	32	..
Eckart & Cross	8c. Experimental Eng..	Laboratory	3	..	16
Eckart & Cross	8d. Experimental Eng..	Laboratory	3	21	..
Eckart & Cross	8e. Experimental Eng..	Laboratory	1-3	1	2
Durand	9. Pumping Machinery	Lecture	2	..	48
Durand	10. Power Plants.....	Lecture	2	27	..
Durand	11. Seminary	Lecture	1	8	10

The work of the year was carried out in accordance with the schedule without serious difficulty, although many adjustments and temporary makeshifts were required, as a result of earthquake damage, especially during the second semester when the Engineering building was vacated for restoration.

The vacancy resulting from the retirement of Instructor J. E. Peterson, foreman of forge, was happily filled by the appointment of Mr. R. H. Harcourt. During the year the supplementary lecture system was carried forward in the pattern shop and foundry with most gratifying results, and for the coming year such system will be extended to the two remaining shops, machine shop and forge, for which purpose Instructors Palmateer and Harcourt have been making special preparation during the year.

The head of the department has continued throughout the year his service as a member of the Commission of Engineers, and such work has occupied the larger part of his attention outside of the hours spent directly in class-room work.

Valuable assistance was rendered in connection with the minor details of administrative work and routine by Instructor E. P. Lesley, and in particular in connection with the work of the shops, for which the head of the department has for some years past acted as superintend-

ent. The appointment of Mr. Lesley to this important position for the coming year marks the beginning of a definite and strong effort to improve and co-ordinate the work of the various shops, and to so adjust the courses of instruction as to render them most effective in the training of the engineer with reference to modern methods and processes of economic engineering production.

The general needs of the department include further additions to the teaching force to cover certain important lines of work, and further large additions to the equipment in shops and laboratories in order to make such instruction most effective. The general policy of adding to the shops and laboratories each year at least one definite item of improved apparatus or machinery was followed out by the purchase for the machine shop of a new turret lathe, and in the laboratory of a new gas engine. This policy will be continued in the future, and as rapidly as funds will permit, it is hoped to place the shops and laboratories in a condition which will render them able to provide in a thoroughly effective manner for the various courses of instruction relating to engineering practice and to industrial engineering production.

W. F. DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING.

The faculty of the department for the year consisted of: Harris J. Ryan, professor; S. Barclay Charters, Jr., and William A. Hillebrand, instructors; Percy H. Williams, laboratory attendant.

The courses of instruction given and corresponding numbers in attendance are stated in the following table:

INSTRUCTOR	COURSE	Hours per Week					Attendance	
		Lec- ture	Class	De- sign	Lec. Lab. De- mon.	Lab.	1st Sem.	2nd Sem.
Charters, Hille- brand	1. El. of E. E.	..	1	..	2	1	44	..
Hillebrand	2a. Elec. Energ.	..	1/2	..	1/2	..	22	..
Hillebrand	2a. Elec. Energ.	..	4	..	..	..	..	22
Charters, Hille- brand	2b. Elec. Energ.	..	..	..	..	4	..	22
Ryan	3a. Elec. Eng..	3	..	..	..	..	18	19
Ryan, Charters, Hillebrand ..	3b. Elec. Eng..	..	..	..	..	4	17	..
Ryan	3c. Elec Eng..	2	..	2	..	..	..	19
Charters	4. Transmis'n.	2	..	..	..	..	16	..
Charters	5. Elec. Rys..	2	..	..	..	..	..	26
Ryan	Graduate	..	..	..	..	..	6	5

Throughout the year the energies of the departmental personnel were completely absorbed by routine instruction, production of requisite text, extensions and improvements in laboratory facilities, and the determination of plans for further progress of the same sort. A small percentage of time was applied in co-operating with the University authorities in establishing the present system of arc lighting by means of underground circuits.

Mr. C. F. Elwell, graduate student in the department, did notable work in electrical design applied to the equipment of the electric furnaces for the production of steel at Herault-on-the-Pit employed in the electro-metallurgical investigations of Prof. D. A. Lyon. A paper based upon the results of his electric furnace work was presented to the San Francisco branch of the American Institute of Electrical Engineers at its May, 1908, meeting, and thereafter published in the July 18 and 25, 1908, issues of the *Journal of Electricity, Power and Gas*.

Mr. M. Kawara, a senior student in advanced standing, did some excellent original work of a graduate character in the design of electrical machinery. He published his results on the relation between iron and copper in transformers in the *Electrical World* of April 11, 1908.

In December, 1907, the board of directors of the American Institute of Electrical Engineers granted the students in the department a charter for the establishment of the "Stanford Branch, A. I. E. E." Such branch was duly organized by the students for the purpose of mutual benefit in discussing the current proceedings of the Institute, and other technical topics of special student interest in accordance with pre-arranged programs; and for the purpose of becoming acquainted with the personalities of the leaders in the profession and the spirit that guides their work.

Instructor Charters spent the Easter recess assisting the Consulting Engineering Committee engaged in the Redondo power plant acceptance test; and the summer recess in the care, rehabilitation and improvement of the laboratory equipment made necessary, primarily, on account of the reconstruction of the laboratory building by the Commission of Engineers.

Instructor Hillebrand spent the greater part of the summer recess at work in the electrical department of the U. S. Bureau of Standards, Washington, D. C., and in visiting universities and industrial plants of great interest to the teaching electrical engineer, with special reference to his future duties at Stanford as officer of instruction in charge of the standardizing section of the electrical engineering laboratory.

HARRIS J. RYAN,
Professor of Electrical Engineering.

APPENDIX II

REPORTS OF COMMITTEES

STUDENT AFFAIRS.

At the opening of the academic year 1907-08 the Committee on Student Affairs consisted of Professor W. F. Durand, chairman, and Professors V. L. Kellogg, A. G. Newcomer, B. O. Foster and A. M. Cathcart. A new committee consisting of Professors A. B. Clark, A. M. Cathcart, G. C. Price, A. C. Whitaker and R. E. Swain was appointed on February 17, 1908, and completed the work of the year.

The committee which began the year endeavored to bring about and maintain order through direct appeal to the manliness and good sense of the students. To this end letters were addressed to representative groups of students and numerous conferences held.

In reference to one of a series of these conferences held in 1907, the chairman, Professor Durand, speaks as follows, in the Fourth Annual Report of the President:

"The general results of this conference seem to have been beneficial throughout the year, and it is probable that the repetition of such conference from year to year will serve to consolidate precedent and tradition in such a manner as to form a most influential and important factor in the problem of local government."

Unfortunately beneath the surface of apparent good feeling and compliance there was an increasing laxity of behavior as the appeal to manhood and the extensive liberty allowed were misinterpreted by certain students as license for self-indulgence.

A peculiarity of the situation was that it assumed dangerous proportions in its underground workings before either the students generally or the University authorities realized the danger. However, the celebrations following the annual football game, together with the Senior Circus and the Plug Ugly show, disclosed a condition which shocked the community. The Campus residents began to realize that the midnight disturbances had other objectionable features than mere noise. The President, absent from home at the time, learned from Alumni and friends of the University at a distance facts which had come to light in letters of students. Even the student press began to comment and to warn.

But even at this time it seemed impossible to identify offenders, and if systematic investigation had not been made (under pledge of honor

not to use the information for disciplinary purposes) the true extent of the disorder would not have been known.

One saloon in particular, in San Mateo County, was contributing to the downfall of students. The President of the University endeavored to have the license of this saloon revoked. The Civic League, composed of Campus residents, manifested an interest, and the Executive Committee of the Faculty entered into an investigation. The Committee on Student Affairs, on November 20th, sent a circular letter to the various fraternities, "calling attention to the fact that the agreement entered into by their representatives and the Committee . . . had not apparently been carried out in good faith, and that the Faculty as a body were becoming seriously concerned with regard to the present tendencies toward drunkenness and disorder; . . . that no further notice or appeal could be made in the matter and that infractions would be visited by the Committee with prompt and serious consequences."

These various warnings had no apparent effect. The Chapparal resented the attempt to interfere with the students' favorite drinking place, and the Press Club continued to regard a Menlo saloon as its proper meeting place. On February 5th a student returning home from Menlo Park in an intoxicated condition entered the wrong house, and through being mistaken for a burglar was shot.

The Board of University Trustees at a meeting held on February 7th took the following action:

"Resolved, That drunkenness be regarded as a ground for suspension from the University, and that the President and Faculty take all necessary steps to enforce this regulation."

On February 10th the committee of which Professor Durand was chairman resigned, expressing its feeling "that a reorganized Committee on Student Affairs can more effectively carry out your (the President's) policy for the control of the drinking problem."

February 14th the Academic Council received from the Executive Committee, which had been considering the matter since December, a report on the facts of the situation and adopted resolutions as follows:

"The Academic Council of the University is in thorough sympathy with the policy of eliminating the drinking of intoxicating liquors from Encina Hall, the fraternity houses, and other lodgings, and of the removal of students guilty of drunkenness from the institution.

"The Council hereby urges and instructs the University Committee on Student Affairs to use all practicable means to these ends, and pledges its support to the President and the Committee on Student Affairs in their efforts toward freeing the University from the burden and disgrace of student drunkenness."

The new Committee on Student Affairs, which had been appointed on February 14th, was received by the students with a spirit of hostility and resentment which found expression in the student press and in

various minor ways. There was a persistent demand on the part of the students for a statement of the committee's attitude and purpose in the matter of student drinking. In response to this demand the committee on March 10th issued the following statement:

"The Committee on Student Affairs respectfully calls the attention of the students to the following resolutions, which were adopted on February 14, 1908, without dissenting voice, by the Academic Council of the University:

"The Academic Council of the University is in thorough sympathy with the policy of eliminating the drinking of intoxicating liquors from Encina Hall, fraternity houses, and other student lodgings, and of the removal of students guilty of drunkenness.

"The Council hereby urges and instructs the University Committee on Student Affairs to use all practicable means to this end, and pledges its support to the President and Committee on Student Affairs in their efforts toward freeing the University from the burden and disgrace of student drunkenness."

"This committee in considering the interpretation it should place upon these resolutions believes that all drinking of intoxicating beverages in Encina Hall, the fraternity houses or other student lodgings, is obviously inconsistent with the spirit of these resolutions and should, therefore, be discountenanced by all loyal members of the University community.

"The known occurrence of a so-called 'beer-bust' or other drinking party, which results in disorder or drunkenness in any degree, upon premises under the control of any student club, fraternity, organization or group, will be treated as an offense for which the members of such club, fraternity, organization or group shall be held responsible. Furthermore, any student who is known to have been noticeable under the influence of intoxicating liquors in any place, or to have participated in a so-called 'beer-bust' or drunkenness in any degree, shall be considered a subject for discipline at the hands of the committee. The committee would have it clearly understood that all students violating the spirit of the resolutions of the Academic Council do so at their peril, and that whenever disorder or drunkenness in fact results from such violation an intention to avoid such disorder or drunkenness will be regarded as no excuse.

"The committee hopes that the voluntary co-operation of the students will make further restrictive measures unnecessary."

This statement was made the occasion of a disorderly demonstration on the part of a considerable body of students. A parade was formed, led by a part of the band, which, with songs and yells adapted to the occasion, demanding the resignation of the chairman and the formation of a new committee, marched about the Campus and to the home of the chairman in a neighboring village, in his absence the students venting their feelings on his family. Returning to the University buildings, the

parade, grown to two hundred or more students, marched with noise and disorder through the University Library and into the Memorial Court, where from the base of the statue of the founders the committee's statement was read and ridiculed.

This demonstration was so evidently a defiance of University authority that it could not be ignored. The committee met and immediately suspended twelve students identified as participating in it. Two hundred and forty-two other students petitioned the committee asking for the reinstatement of the twelve, or that like punishment be meted out to them. The petitioning students were heard individually, and the following action taken by the committee on March 25th:

"The Committee on Student Affairs has taken action in the matter of the demonstration of March 12th, as follows:

"In the case of the twelve students originally suspended action has been reconsidered and they have been placed in the same category with the 242 petitioners who voluntarily acknowledged participation in the demonstration.

"As a result of the hearings given by the committee these 254 participants have been separated into three groups:

"1. (a) Those who were not in the parade (to the number of 17); (b) those who refused to testify to the fact of participation in the parade (to the number of 2); (c) those who withdrew their request that the committee investigate their part in the parade (to the number of 1); (d) those who did not act independently in signing the petition (to the number of 19); (e) those who participated in a minor way (to the number of 41).

"2. Those who participated actively, but in a portion only of the parade (to the number of 36).

"3. Those who participated actively and fully in the demonstration (to the number of 121).

"In regard to the first group no action is contemplated by the committee.

"All students in the second group have had five unit hours added to the requirements for graduation.

"In regard to the third group, those who have been considered by the committee as upper class men (to the number of 41), are suspended for the rest of the semester. Second-year students have had ten unit hours added to the requirements for graduation. First-year students have had five unit hours added to the requirements for graduation."

During the adjudication of this affair the difficulties of the situation were greatly increased by the fact that the newspapers were relying for their information upon student correspondents, immature in judgment, lacking in experience and prejudiced in their views. The public generally, nevertheless, as evidenced by the editorial comment in the Pacific Coast

papers, came to have a very clear appreciation of the issues involved and approved the University's stand for discipline and for its right to control student action in the matter of drinking.

In further emphasis of the position of the University in this matter the following statement was issued to the students by the Committee on Student Affairs:

"At the meeting of the Board of Trustees of the University held April 24, 1908, it was voted that in all future rentals or leases of houses as fraternity chapter houses the following language shall be used:

"'It is expressly covenanted, agreed and understood that no malt, spirituous, or intoxicating liquors of whatever kind shall ever at any time be sold or used on the demised premises, and upon a violation of this rule this covenant shall terminate and become void.'

"All recent leases of chapter houses or plots for building expressly say:

"'It is hereby especially covenanted, agreed and understood that the party of the second part, the subtenants of the party of the second part, and the occupants of the premises hereby leased, are subject to the rules of discipline and all other laws and regulations of every kind that may at any time or times be prescribed, or adopted by the party of the first part, or by the Faculty of the Leland Stanford Junior University, or other University authorities.'

"At the meeting of the Board of Trustees held May 29, 1908, the following resolution was passed:

"'The Academic Council is requested to prohibit the use of liquor in fraternity chapter houses, student club houses, and other student lodgings.'

"These resolutions of the Board of Trustees are in harmony with the instructions given in February last, by the Academic Council, to the Committee on Student Affairs, and define the policy of the University. The prohibition of the use of liquor extends to all student lodgings, whether on the Campus or elsewhere.

"The University assumes that the act of registering as a student implies full acceptance of this policy."

During the spring semester certain students who had failed to comply with the regulations of the Committee on Public Health in the matter of vaccination were referred to this committee with a view to discipline. This raised a question of jurisdiction.

It was maintained by the chairman of this committee that each administrative committee of the Faculty should enforce its own regulations and determine and execute its own judgments. This opinion was sustained by the President.

On March 4th it was resolved that in the future no liquor or saloon advertisements be permitted in any student publication or program.

On April 10th the following rule was adopted:

"During the period of suspension from the University a student shall not attend University exercises, nor remain in residence at the University, nor frequent the University grounds, except by special permission of the committee.

"A student under suspension shall not take part in any inter-collegiate contest, nor represent the University in any way, whether individually or in connection with any athletic, literary, musical, dramatic, or other organization."

On April 24th the following rule was adopted:

"Fraternities and student clubs shall not be permitted to have students under suspension in residence at their houses, or to allow such students to frequent the fraternity premises. Violations of this rule may be cause for discipline of the fraternity chapter as a whole."

In addition to the penalties inflicted for the "parade" the following list represents the severer punishments inflicted during the year:

No. of Students	OFFENSE	PUNISHMENT
1	Fraud in examination.....	Penalized 10 credits.
1	Fraud in examination.....	Suspension, Oct. 22 to end of academic year.
1	Disorder in public hall.....	Suspension, Jan. 21 to end of academic year.
3	Under influence of liquor....	Permanent suspension.
1	Under influence of liquor....	Suspension, Feb. 24 to end of academic year.
1	Abuse of privilege of press..	Registration denied.
2	Insolence in "Quad".....	Registration privilege withdrawn.
1	Fraud in examination (2nd offense)	Permanent suspension.
1	Misrepresentation of the University in the public press	Registration privilege withdrawn.
3	Insolence and insubordination	Registration privilege withdrawn.
3	Objectionable character and influence.....	Registration privilege withdrawn.
1	Relating to violation of rules governing students under suspension	Registration privilege withdrawn.
1	For writing obscene letters...	Expelled.

The University for seventeen years of its existence has been a University of "freedom" rather than a University of "discipline." The amount of surveillance exercised over students has been set at a minimum. The definite prohibitions have been few. Among large bodies of students, however, there will always be some who misinterpret freedom to mean the right to do anything which desire suggests. Any measure of restraint to this class seems a trampling on "rights" and "liberty." But these few must be controlled or they will act as a grave demoralizing influence.

In the large life of the University, students come in contact with their fellows—men of equal immaturity, more often than with their teachers—men of maturity, watchful of influences which make for student character and for the good name of the University. In many ways through social instincts they become subservient to the customs and traditions of the "student body" and are prone to follow unquestioningly the leaders, men who through athletic prowess or otherwise have become prominent.

College customs are very dear to college men. If a proceeding occurs once without discipline it is considered permissible. Two annual occurrences, from a student's point of view, make a custom, and each repetition adds to its force as a tradition. In the college of "freedom" custom, tradition and "student body opinion" take the place of a code of rules.

These conditions show the difficulty of uprooting well established customs, as well as the necessity for doing so if customs are harmful. It also points the desirability of care in regulating traditions and of holding the leaders and organizers of student enterprises, fraternal groups, and other student bodies strictly accountable for the results of leadership.

In times of friction students are too prone to consider that their disagreements have to do only with the members of the disciplining committee, whereas in fact insubordination is against the University itself whose beneficiaries and wards the students are. The committee is merely an agency in maintaining such rules and regulations as the governing body of the University may put into effect.

It should be added, in closing, that the opening months of the current year show that the manliness and good sense of the students, which have always been distinguishing qualities of the Stanford student body, have asserted themselves with every promise of satisfactory conditions for the future.

ARTHUR B. CLARK,
Chairman.

ATHLETICS.

The committee for the year consisted of Professors Durand, Wing, Snow, Whitaker and Angell.

The chief problem confronting faculty athletic committees throughout the country—Stanford's among them—is not one of amateur standing, or of scholastic eligibility for varsity teams, but of inducing a more widespread participation in athletic sports among the students at large.

To most college graduates of the sixties or seventies, the statement of such a problem must seem more or less meaningless. They naturally see no particular reason why there should be any necessity for taking steps to incite normally healthy and active students to such enjoyment in outdoor games. Nevertheless, under the system of intercollegiate competition which has grown up in this country during the last twenty-five years the need for such encouragement has become imperative. Almost all the athletic activity in any given sport under this system, as stated to you in previous reports, consists in picking out and carefully, even tediously, training the relatively few students, naturally fitted for a given sport, to meet a group of representatives from a neighboring university, similarly selected and trained, in an intercollegiate match game. Under this system, less than a quarter of the students play football or take up track and field sports, to instance the two most extensively pursued varieties of athletics.

If this condition were peculiar to the college, it might not be very hard to meet. Unfortunately, the system exists in perhaps a worse form in the high schools, which have usually less facilities for varied outdoor exercise than the colleges, and it is even found in the grammar grades. The result of this condition is that a large number of students entering the University have but little skill in any of the recognized college sports, and but little inclination for them. They are content to sit on the bleachers and let the trained and naturally adapted few do athletics for them.

This state of affairs is in several ways unfortunate. It has deprived a large number of students of recreative pleasure. It has reacted on intercollegiate games, intensifying them so that they are properly termed battles and fights, and it has at least been accessory to the over-development of the varied student avocations—social, dramatic and journalistic—which so noticeably interfere with higher intellectual interests.

To meet these conditions there must, in the first place, be sufficient facilities in the form of athletic fields. At Stanford, as at most American colleges, the athletic fields consist of a running track and football field, in one enclosure, and a baseball field outside—all used exclusively for interscholastic team practice and matches. To overcome this difficulty, the Board of Trustees last year appropriated \$2000 for the construction of a football and baseball field on the athletic grounds north of the new football bleachers. This sum was given with the proviso that the fields

were to be used for college athletics, as distinct from intercollegiate contests, and accordingly they are not provided with bleachers.

To induce students who are unskilled in athletic sports to take part in them is, however, a matter of physical education, and this task the gymnasium is willing to undertake if the teaching staff is increased by the force necessary to take up the additional work.

The number of participants in athletic sports has considerably increased of late years, owing chiefly to the introduction of freshman intercollegiate games. But the season of practice for these matches is so short that they serve rather as a disturbance than as a furtherance of our athletic activities, and the general sentiment in the University is in favor of abolishing them.

There has been, however, a healthy increase in athletic activity on the football fields. More men come out to play Rugby football than appeared under the old regime, and they seem to get more pleasure in the sport. At any rate, the football players show an elasticity of body and mind after a game that never appeared while the old game was in vogue.

In baseball, the situation is practically unchanged. Despite the fact that more men can play baseball than any other game, but comparatively few play the game, or have much chance to play it. The sport, if it can be so termed under present conditions, consists almost exclusively in the training of candidates for places on the 'Varsity team.

The matter of baseball amateurism is a troublesome one in California, as it is throughout the country, on account of the summer player, who usually receives compensation in some form or other for his services. The problem seems a very perplexing one to athletic committees in the eastern and central parts of this country, more especially on account of the fact that meritorious students at times use their skill in baseball to help defray their expenses in college. At this institution we find that we do not dare to subject the amateur player to competition for places on a 'Varsity team with the professional player or to bring the college standard of sportsmanship in baseball, already too low, in close contact with professionalism. Moreover, to have two standards of amateurism in the University, one for baseball and another for other sports, is absurd. If baseball presents such insoluble difficulties from the amateur standpoint, it would seem that the best move would be to drop it altogether from the list of intercollegiate sports.

The condition in track and field sports, and in tennis and boating, have not changed essentially since last year. They are all meritorious forms of sport, and it is a pity that the two last are not more developed at this institution.

What has been said in regard to the necessity for training in outdoor games for the men holds with more emphasis for the women. The number of young women who come to this University with any skill in

the outdoor sports that women are capable of taking up is amazingly small, and at present the only outlook for bringing about a general participation in tennis, hockey and basket-ball on their part is by education through the gymnasium. And there seems to be no better way of counterbalancing the over-development of social, or rather society, life among the women of the University than by the developing of out-of-door sports.

During the year the young women have added two cement handball courts to their field equipment, and at their own expense are maintaining their athletic field in excellent condition.

FRANK ANGELL,
Chairman.

PUBLIC HEALTH.

The members of the Committee on Public Health for 1907-08 have been Professors Snow, Griffin, Swain, Peirce and Stoltenberg. Professors Snow, Griffin and Swain were designated by the President to serve as members of the Students' Guild Board of Directors. Dr. Edith E. Johnson has been medical assistant, and Miss Josephine Randall secretary for the committee.

Complete records of the committee's work are kept on file, but they have not been considered of sufficient general interest to warrant publication in detail. In the health registrations for new students twenty-five gave a history of ill health and registered for limited work; 525 gave a history of good health and ability to carry full work; 29 of this number were noted in the medical examinations for observation during the year. The petitions on account of overwork and ill health of the whole student body for the year include 68 for permission to carry less than 13 units of work, 145 for a reduction of units carried, and 66 for leaves of absence. Of these petitions 191 were on account of illness and 88 on account of outside work, making a total of 16 per cent of the student body who made a failure of the work on account of lack of health or strength to carry out their plans. Approximately 6 per cent of these failures have been due to unavoidable illness. The remaining 10 per cent failed during the past year in courses in which they were registered because of preventable conditions. The lack of proper housing accommodations on the Campus and the nervous excitement incident to many of our "college activities" and customs are largely responsible for these failures.

These facts are repeated each year and become significant factors in the administrative problems of the University. It is possible to prevent this loss of money and time of instruction both to the University and to the students by the investment of some money in additional equipment for the houses already built and for several additional modern dormitory

buildings; and by the adoption of health standards for admission and for graduation. The question hinges upon the purpose of the University. If that purpose is to place the stamp of graduation approval only on those men and women who are thoroughly equipped with an educational and physical training which will ensure sound methods of living and working in after life, then the University ought not to hesitate to withhold its degrees from those students who fail to qualify in physical as well as in educational requirements.

The Students' Guild has continued to provide for the hospital needs of the students. The appearance of three cases of smallpox in Encina dormitory caused some uneasiness and required the establishment of a field hospital. Each year the directors of the Guild have added evidence of the desirability of having the student hospital on the Campus. The Guild has been able to equip its plant through building and loan arrangements, and to provide for the current expenses; but it has been unable to set aside any emergency fund, and would be unable to finance such a situation as developed during the typhoid epidemic in 1903.

Eleven hundred students were vaccinated during the second semester as a measure in preventing the spread of smallpox. The University also adopted the policy of requiring effective vaccination as a condition of residence while attending the University.

WILLIAM F. SNOW,
Chairman.

DELINQUENT SCHOLARSHIP

The committee consisted of Elliott, Murray, Hoskins, Woodward, Millis and Gilbert.

It held fourteen meetings during the year to consider reports of delinquent scholarship submitted by the members of the faculty. On the basis of these reports a total of 232 students were placed under suspension for the period of one semester. Of this number, 218 were men and 14 women; or, stated in percentages, 18 1-3 per cent. of the men and 2½ per cent. of the women registered in the University. This striking disparity in scholarship between the men and the women has been apparent during the entire history of the University, and is only in part accounted for by the severer discipline of the engineering and law courses, in which women rarely register.

In the following table, students are grouped by residence, and the percentage of failures in scholarship is separately shown for each group. It is unnecessary to formulate the obvious deductions from these figures:

Residence.	Men Total Number	Percent. of Failures
Palo Alto and Mayfield.....	368	11.4
Encina Hall.....	350	12.5
Private residence on campus.....	90	20
"Commuters"	55	23.6
Fraternities	323	28
	Women	
Palo Alto and Mayfield.....	131	1.5
"Commuters"	43	0
Madreño Hall and private houses on campus.....	141	2.8
Sororities	125	3.2
Roble Hall.....	112	3.6

C. H. GILBERT,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR.

The total number of students in attendance in 1907-08 was 1738. Of these 1164 had previously been in attendance, 574 were new students. As compared with 1906-07 there was an increase in old students of 9, in new students of 61, making a total increase of 70.

STATISTICS OF REGISTRATION, 1903-1908

	1903-04	1904-05	1905-06	1906-07	1907-08
Old students.....	970	982	1069	1155	1164
New students.....	515	586	717	513	574
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	1485	1568	1786	1668	1738
Percentage of old students					
returning	65.4	66.1	68.2	64.1	69.7
From California.....	1119	1188	1341	1329	1438
From other States.....	366	380	445	339	300
Percentage outside Cali-					
fornia	21.	24.6	24.2	24.9	17.2

AVERAGE AGE AT MATRICULATION.

Graduates*	27.6	29.2	30.	29.7	28.7
Advanced standing.....	22.4	22.4	22.7	21.5	22.8
Freshmen	20.6	19.8	20.	19.9	20.4
Specials	24.5	25.1	24.1	25.	25.1

*From other colleges.

AGE OF FRESHMEN AT MATRICULATION

Under 17.....	9	9	11	5	4
17-18	45	40	45	34	41
18-19	88	81	112	89	104
19-20	77	96	152	118	123
Over 20.....	163	161	161	161	135
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	387	387	481	407	407

STATISTICS OF ENTERING CLASS, 1907-08

	Number Entering	Number Returning 1908-09	Dropped for Poor Scholarship
From Colleges—			
Graduates	23	6 (26%)	
With advanced standing.....	94	48 (51%)	13 (13.8%)
Without advanced standing.....	23	8 (34.8%)	2 (8.7%)
	<hr/>	<hr/>	<hr/>
	140	62 (44.2%)	15 (10.7%)
From Normal Schools.....	20	8 (40%)	1 (5%)
From Preparatory Schools—			
On recommendation (wholly or mainly) :			
In full undergraduate standing..	285	266 (73%)	52 (18%)
In partial standing.....	68		15 (22%)
Wholly on examination:			
In full standing.....	9		1 (11%)
In partial standing.....	2		1 (50%)
	<hr/>		
	364		
As special students.....	50	25 (50%)	20 (40%)
	<hr/>	<hr/>	<hr/>
	574	361 (62.9%)	105 (18.3%)

COMPARATIVE NUMBERS AT MATRICULATION

	1906-07	1907-08
From Colleges—		
Graduates	15	23
With advanced standing.....	69	94
Without advanced standing.....	6	23
	<hr/>	<hr/>
	90	140
From Normal Schools.....	19	20
From Preparatory Schools—		
On recommendation (wholly or mainly) :		
In full undergraduate standing.....	256	285
In partial standing	113	68
Wholly on examination:		
In full standing	0	9
In partial standing	9	2
	<hr/>	<hr/>
	378	364
As special students.....	26	50
	<hr/>	<hr/>
Total	513	574

CLASSIFICATION BY MAJOR SUBJECTS

	1904-05	1905-06	1906-07	1907-08
Greek	10	16	15	19
Latin	72	74	58	54
Germanic Languages.....	88	101	95	92
Romanic Languages.....	43	44	23	20
English	226	222	178	177
Philosophy	3	4	0	2 -
Psychology	5	7	6	4 --
Education	21	27	25	26
History	93	104	128	143
Economics	90	93	97	131
Law	209	308	299	295
Drawing	19	30	32	31
Mathematics	33	36	25	34
Physics	10	11	10	13
Chemistry	93	107	84	83
Botany	18	22	28	31
Physiology	71	66	64	53
Zoology	39	32	29	28
Entomology	12	14	12	11
Geology and Mining.....	124	127	126	123
Civil Engineering.....	118	138	146	185
Mechanical Engineering.....	71	76	73	66
Electrical Engineering.....	110	127	115	117
	<hr/>	<hr/>	<hr/>	<hr/>
	1568	1786	1668	1738

DISTRIBUTION OF ENTERING CLASS, 1907-08

FROM COLLEGES, ETC.

Alleghany College.....	2	Kansas State Agricultural Col.	1
Armour Institute of Technol..	1	Lake Erie College.....	1
Baltimore Poly. Institute.....	1	McPherson College (Kansas)	1
Braunschweig Technical S....	1	Manitoba College.....	1
Carleton College.....	1	Mills College.....	2
Colorado College.....	2	Montana Agricultural College.	1
Columbia University.....	1	Moore's Hill College.....	1
Cornell University.....	3	Mount Holyoke College.....	1
Dartmouth College.....	1	Mount Morris College.....	1
DePauw University.....	1	Northwestern University.....	2
Drake University.....	2	Oahu College.....	1
Fairmont (Kansas) College..	1	Occidental College.....	6
Iowa State College.....	2	Osaka Technical College.....	1

Pacific University.....	1	University of Nevada	1
Palmer Institute.....	1	New Mexico....	1
Peabody College for Teachers.	1	Oregon	1
Pomona College.....	11	Pacific	2
Princeton University.....	1	Pennsylvania ...	2
Rose Polytechnic Institute....	2	South Dakota...	1
Santa Clara College.....	3	Southern Calif..	7
Simpson College.....	1	Sydney	1
Troy Polytechnic Institute....	1	Texas	1
Tufts College.....	1	Toronto	1
University of Arizona	2	Washington	3
California	11	West Virginia...	1
Chicago	4	Wisconsin	2
Cincinnati	1	Vanderbilt University.....	2
Colorado	2	Vassar College.....	1
Denver	4	Washington State College.....	1
Idaho	1	Western College (Iowa).....	1
Illinois	5	Whitman College.....	2
Michigan	3	Whittier College.....	1
Minnesota	6	William Jewell College.....	1
Missouri	2	Worcester Polytechnic Institute	1
Montana	1	Yanktown College.....	1
Nebraska	1		

FROM NORMAL SCHOOLS

Bloomington (Pa.) State Nor.	2	Monmouth (Ore.) State Nor.	1
Greeley (Colo.) State Normal	2	San Diego State Normal.....	3
Los Angeles State Normal...	1	San Jose State Normal.....	11

FROM PREPARATORY SCHOOLS

Alameda H. S.....	6	Chico H. S.....	2
Alhambra H. S.....	1	Cogswell Polytechnic.....	1
Allen Prep. Sch. (Portl'd, Or.)	1	Compton H. S.....	2
Antigo (Wis.) H. S.....	1	Covina H. S.....	3
Army and Navy School.....	1	Davenport (Ia.) H. S.....	1
Arroyo Grande H. S.....	1	Decatur H. S.....	1
Astoria (Ore.) H. S.....	3	Denver (N. S.) H. S.....	1
Bakersfield H. S.....	2	Detroit Central H. S.....	2
Belmont School.....	3	Elk River H. S.....	1
Benicia H. S.....	1	El Paso H. S.....	1
Boone's University School....	1	Emmetsburg H. S.....	1
California College Academy...	1	Escondido H. S.....	2
Cal. Sch. Mech. Arts.....	2	Eureka H. S.....	2
Campbell H. S.....	7	Everett (Wn.) H. S.....	1

Fallbrook H. S.....	1	Notre Dame H. S. (San Jose)	1
Fresno H. S.....	3	Oakland H. S.....	5
Fullerton H. S.....	1	Omaha (Nebr.) H. S.....	2
Geneseo H. S.....	1	Ontario H. S.....	2
Gilroy H. S.....	4	Ottumwa H. S. (Ia.).....	1
Girls' Collegiate School.....	1	Paducah H. S.....	1
Glenwood Springs H. S.....	1	Palo Alto H. S.....	24
Grundy Center H. S.....	1	Pasadena H. S.....	15
Hamlin School	4	Petaluma H. S.....	1
Hanford H. S.....	3	Phillips Exeter Academy.....	1
Harker School	3	Phoenix (Ariz.) H. S.....	1
Harvard School	9	Polytechnic H. S. (L. A.)....	1
Highland Park (Ill.) H. S...	1	Polytechnic H. S. (S. F.)....	1
Hill Military Academy.....	1	Pomona Preparatory Depart..	1
Hitchcock Military Academy.	2	Pontiac (Ill.) H. S.....	1
Hollister High School.....	1	Portland H. S.....	1
Hollywood High School.....	1	Prescott H. S.....	1
Junction City (Kans.) H. S..	1	Redlands H. S	11
Kalispell (Mont.) H. S.....	2	Red Oak H. S.....	1
Lakeside (O.) H. S.....	1	Redwood H. S.....	2
Lassen County H. S.....	2	Riverside H. S.....	2
Leamington (Ont.) H. S.....	1	Sacramento H. S.....	5
Little Rock (Ark.) H. S.....	1	St. Helena H. S.....	1
Livermore Union H. S.....	1	St. Matthews School.....	1
Lodi H. S.....	1	Salinas H. S.....	1
Logan (Ia.) H. S.....	1	Salt Lake H. S.....	4
Long Beach H. S.....	2	San Bernardino H. S.....	3
Los Angeles H. S.....	16	San Diego H. S.....	7
Los Gatos H. S.....	3	San Fernando H. S.....	2
Lowell H. S.....	6	San Jose H. S.....	15
MacPherson (Kans.) H. S....	1	San Luis Obispo H. S.....	2
Madera Union H. S.....	2	San Mateo H. S.....	2
Manzanita Hall	1	Santa Ana H. S.....	2
Marlborough School	3	Santa Barbara H. S.....	6
Marysville H. S.....	1	Santa Clara H. S.....	5
Mechanics Arts H. S. (St.		Santa Cruz H. S.....	2
Paul)	1	Santa Paula H. S.....	1
Mills Seminary	3	Santa Rosa H. S.....	1
Mission H. S. (S. F.).....	2	Seattle H. S.....	3
Mitchell H. S.....	1	Selma H. S.....	2
Monrovia H. S.....	3	Shelton (Nebr.) H. S.....	2
Monterey H. S.....	3	Snohomish H. S.....	2
Mount Hermon (Mass.) H. S.	1	Somerville (Mass.) Latin Sch.	1
National City H. S.....	1	Sonora H. S.....	2
Nephi (Utah) H. S.....	1	South Pasadena H. S.....	1

Spokane H. S.....	5	Tulare H. S.....	1
Stelle (O.) H. S.....	1	Ukiah H. S.....	1
Stockton H. S.....	3	Vancouver (Wn.) H. S.....	1
Susanville H. S.....	1	Ventura H. S.....	3
Sutter H. S.....	1	Visalia H. S.....	3
Sweet Grass H. S.....	1	Washburn School.....	13
Tacoma H. S.....	1	Wash'n (D. C.) Central H. S.	1
Taylorville (Ill.) H. S.....	1	Westlake School	1
Thatcher School	1	Whittier H. S.....	3
Throop Polytechnic Institute..	6	Woodland H. S.....	1
Topeka (Kans.) H. S.....	1	Truckee H. S.....	1
Trinity School	1		

ON EXAMINATION

College Entrance Board.....	2
College Entrance Board and Stanford.....	1
College Entrance Board, Stanford and University of California.....	1
Princeton	2
Stanford and University of California.....	4
University of California.....	1

STATISTICS OF ENTRANCE EXAMINATIONS
(Not including English)

	January 1907			August 1907			January 1908		
	Pass	Fail	Total	Pass	Fail	Total	Pass	Fail	Total
Elem. Algebra....	5	12	17	5	17	22	8	18	26
Adv. Algebra.....	4	10	14	8	3	11	1	6	7
Plane Geometry..	2	6	8	9	11	20	5	8	13
Solid Geometry...	0	8	8	2	6	8	1	6	7
Trigonometry	1	2	3	2	4	6	3	2	5
Physics	3	3	6	7	4	11	4	4	8
Chemistry	3	2	5	4	2	6	6	5	11
Physiology	5	1	6	9	4	13	4	3	7
Bctany	1	0	1	1	0	1	1	3	4
Zoology	2	2	4	0	4	4	1	4	5
Biology	1	0	1	0	1	1	0	0	0
Ancient History..	4	8	12	3	3	6	1	3	4
Med. & Mod. Hist.	3	7	10	2	9	11	1	8	9
English History..	7	8	15	10	8	18	2	12	14
*American Hist..	3	9	12	6	12	18	0	13	13
Elem. Spanish....	0	0	0	1	2	3	0	1	1
Inter. Spanish....	0	0	0	1	2	3	1	0	1
Elem. French.....	3	4	7	1	4	5	2	1	3
Inter. French.....	2	1	3	0	1	1	0	3	3
Adv. French.....	1	0	1	0	0	0	0	0	0
Elem. German....	3	1	4	2	7	9	6	3	9
Inter. German....	2	1	3	1	2	3	1	0	1
Adv. German.....	3	0	2	0	0	0	0	0	0
Elem. Latin.....	0	1	1	1	5	6	1	0	1
Adv. Latin.....	0	0	3	1	0	1	1	0	1
Elem. Greek.....	0	0	0	0	0	0	0	0	0
Freehand Draw...	5	18	23	8	25	33	3	8	11
Mech. Drawing...	10	1	11	18	5	23	5	3	8
Woodworking ...	14	9	23	32	25	57	7	7	14
Forge	3	0	3	18	19	37	3	4	7
Foundry	3	0	3	7	0	7	2	0	2
Machine Shop....	0	0	0	9	0	9	1	0	1
*Hygiene	2	4	6	1	12	13	0	5	5
	97	118	215	169	197	366	71	130	201

In January, 1907, the number of students taking entrance examinations was 81. Of these 18 were old students making up entrance deficiencies.

In August, 1907, the number of students taking entrance examinations was 139. Of these 10 were old students making up entrance deficiencies.

In January, 1908, the number of students taking entrance examinations was 62. Of these 12 were old students making up entrance deficiencies.

NUMBER OF SUBJECTS IN WHICH EXAMINATIONS WERE TAKEN BY THE DIFFERENT CANDIDATES.

January, 1907		August, 1907		January, 1908	
No. of Subjects	Candidates	No. of Subjects	Candidates	No. of Subjects	Candidates
1	29	1	44	1	20
2	17	2	40	2	14
3	14	3	21	3	5
4	7	4	15	4	6
5	6	5	5	5	5
6	4	6	7	6	4
7	0	7	4	7	2
8	3	8	1	8	5
9	1	9	2	9	0
10	0	10	0	10	1

Of the 81 candidates for admission taking entrance examinations in January, 1907—

25 entered the University.

5 might have entered (in partial standing) without taking examinations.

20 needed supplementary credits and could not have entered without taking examinations.

6 of these 20 entered as special students.

3 entered as regular students wholly on examination, 2 wholly on Stanford examinations, and 1 had also taken entrance examinations at University of California.

Of the 139 candidates for admission taking entrance examinations in August, 1907—

88 entered the University.

13 of these 88 entered as special students.

4 entered as regular students wholly on examination, but none wholly on Stanford examinations; 1 had taken Stanford and University of California examinations; 1 College Entrance Board and Stanford examinations, and 2 College Entrance Board, University of California, and Stanford examinations.

Of the 62 candidates for admission taking entrance examinations in January, 1908—

16 entered the University.

4 of the 16 entered as special students.

0 entered wholly on examination.

REGISTRATION OF STUDIES

Fifteen units constitute a normal semester's work. The following was the actual registration during 1907-08:

Number of Students		
	First Semester	Second Semester
For 1 unit.....	0	0
2	1	2
3	1	2
4	4	3
5	0	6
6	3	9
7	6	6
8	10	6
9	8	8
10	40	56
11	40	38
12	52	49
13	164	174
14	252	211
15	498	429
16	259	228
17	155	150
18	97	111
19	2	3
20	1	1
Over 20	0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1907-08

	First Semester	Second Semester
Total number of petitions acted upon.....	893	689
To change registration by dropping subjects, or taking up new subjects, or both...	551	347
To change major subject.....	65	31
To register for fewer than thirteen units.....	146	133
To register for more than eighteen units.....	4	10
For leave of absence.....	76	90
Miscellaneous	51	78

STATISTICS OF GRADUATION

The total number of degrees conferred in 1907-08 was 273, distributed as follows:

Greek .....	..	..	2	..	..	3
Latin .....	..	..	..	..	..	16
Germanic Languages.....	..	..	1	..	..	20
Romanic Languages.....	..	..	1	..	..	6
English .....	..	..	2	..	..	26
Psychology .....	..	..	..	..	..	1
Education .....	..	..	..	..	..	2
History .....	..	..	2	..	..	18
Economics .....	..	..	1	..	..	10
Law .....	..	9	..	..	4	29
Drawing .....	..	..	..	..	..	1
Mathematics .....	..	..	..	..	..	7
Physics .....	..	..	1	..	..	3
Chemistry	1	..	..	..	..	16
Betany .....	..	..	..	..	..	8
Physiology .....	..	..	1	..	..	12
Zoology .....	..	..	2	..	..	7
Entomology	1	..	1	..	..	2
Geology and Mining.....	..	..	..	..	..	11
Civil Engineering.....	..	..	..	..	..	18
Mechanical Engineering.....	..	..	..	..	..	8
Electrical Engineering.....	..	..	..	2	..	19
	—	—	—	—	—	—
	2	9	14	2	4	243

In the case of the 243 students who received the degree of Bachelor of Arts the period of residence was as follows:

2 semesters	6
3 semesters	3
4 semesters	16
5 semesters	5
6 semesters	25
7 semesters	15
8 semesters	118
9 semesters	33
10 semesters	13
11 semesters	3
12 semesters	3
13 semesters	2
14 semesters	0
15 semesters	1
	—
	243

The 69 students who took their A. B. degree in less than four years were enabled to do this as follows ("extra courses," meaning courses in excess of the normal 15 units per semester) :

Through advanced credit from other institutions.....	50
Through advanced credit supplemented by extra courses.....	2
Through advanced credit supplemented by summer work.....	5
Through advanced credit supplemented by summer work and extra courses	1
Through summer work and extra courses.....	2
Through summer work, extra courses, and credit for extra entrance units	3
Through summer work	2
Through credit for extra entrance units	4
Through credit for extra entrance units and extra courses.....	1
	<hr/> 70

FACULTY LEGISLATION

In general the legislation of the year has concerned itself with matters of minor importance. Plans were perfected for a University series of publications, the first number of which appeared in May, 1908, and for the issuance in 1910 of an Alumni Directory. The Faculty regulations regarding semester grades was so far modified, by action of the Academic Council, as to permit such grades to be transmitted to school principals, in the case of first-year undergraduates, and to other college or universities, on request, in the case of transfers. The Registrar was also directed to use grade marks on the duplicate records furnished to the various departments. By invitation of the Trustees the matter of a Faculty residence site on the Campus was canvassed and a report adopted for transmission to the Trustees. That part of the report which recommended the reservation of the San Juan Extension for the exclusive use of members of the Faculty was approved by the Trustees. Minor changes in conditions of admission were made, including a revision of the phraseology concerning the admission of women, dropping Advanced Physics from the list of entrance subjects and adding Advanced French, and providing for the conduct of entrance examinations by proctors. In the latter connection it was made necessary for candidates to obtain permits from the Registrar before being admitted to an entrance examination. The calendar was changed by dropping May 14 as a holiday, but providing that it be noted in the calendar as the birthday of Leland Stanford, Junior; also that the birthday of Mrs. Stanford be noted in the calendar.

There was considerable discussion in the Executive Committee concerning recommendations of the Committee on Public Exercises looking toward making Commencement and other University occasions more attractive. The general plans of the Committee on Public Exercises received the hearty approval of the Executive Committee, and so far as they concerned Commencement were sent up to the Trustees of the University for indorsement and the necessary financial support. The committee's proposal was to make Admission Day, Washington's Birthday, Founder's Day and Commencement, particularly the last two named, notable University and academic occasions, with addresses by distinguished speakers, and, in the case of Commencement, with special reference to encouraging the attendance and reunion of Alumni.

A discussion of the President's proposals concerning reorganization of the undergraduate work and separation into Junior College and Senior College, with a view to the gradual elimination of Junior College, was begun in the Executive Committee and a sub-committee appointed to consider and report in detail.

May 31, 1907, action was taken by the Board of Trustees as follows:

"It was resolved that the President of the University submit to the Academic Council the request of the Board of Trustees that the Academic Council state any reasons for granting academic degrees in either the Department of Drawing or of Hygiene, excepting to students of those departments now applicants for such degrees."

By direction of the Academic Council the question raised by the Trustees was first considered by the Executive Committee and a report rendered to the Council. The reply of the Council defending the policy and practice of the University in the matter of degrees and in the organization of the departments of Drawing and Hygiene was adopted January 10, 1908. This report is added as Appendix IV.

In November, 1907, the Campus Civic Club made representations to the President of the University concerning certain deplorable conditions existing upon the Campus, and at the same time made inquiry of the Trustees as to the possibility of controlling the delivery of liquor on the Campus. The matters involved were given prolonged discussion in the Executive Committee and finally brought to the attention of the Academic Council through a series of recommendations. The Council took action February 14, 1908, designed to strengthen the hands of the Committee on Student Affairs in its efforts to remedy existing evils, as follows:

"The Academic Council of the University is in thorough sympathy with the policy of eliminating the drinking of intoxicating liquors from Encina Hall, the fraternity houses, and other student lodgings, and of the removal of students guilty of drunkenness from the institution.

"The Council hereby urges and instructs the University Committee on Student Affairs to use all practicable means to those ends, and pledges

its support to the President and Committee on Student Affairs in their efforts towards freeing the University from the burden and disgrace of student drunkenness.

"The Faculty asks the Board of Trustees to arrange—

"1. For the establishment of such supervision and control in Encina Hall, under authority of the University Faculty, as will insure the maintenance of order and decorum in the Hall and the enforcement of University regulations.

"2. For such proctorial or other assistance, acting under the authority of the University Faculty, as may be necessary to make up for the absence of ordinary municipal government and control on the University Campus."

O. L. ELLIOTT, Registrar.

APPENDIX IV.

REPORT OF ACADEMIC COUNCIL ON GRANTING OF DEGREES IN DRAWING AND HYGIENE

Action was taken by the Board of Trustees May 31, 1907, as follows:

"It was resolved that the President of the University submit to the Academic Council the request of the Board of Trustees that the Academic Council state any reasons for granting academic degrees in either the Department of Drawing or of Hygiene, excepting to students of those departments now applicants for such degrees."

The resolution of the Board of Trustees raises a question as to the standing of Drawing and Hygiene as departments of university instruction; this in reality involves a question as to the efficient operation of the major subject system.

At Stanford, degrees are not granted in Drawing or Hygiene, nor in Greek or Latin or History or English or similar subjects. A few major subjects are distinctively descriptive of the course of study, and have a definite and recognized meaning in connection with a university degree. This is true in departments where the whole course of study is practically prescribed; it is not at all true in Greek or Latin or English or History or Zoology or any of the non-technical departments. The degrees granted are in no proper sense degrees in Greek or Latin or English or History; they are all university degrees.

Different methods of limiting the free elective system are followed at different universities. The Stanford method requires the student to choose as his major subject the work of some one department (or, as it may happen, some division of a department). It is a device for administering, directing, and, to some extent, limiting the elective system, and for bringing the student into close and sympathetic contact with that professor or group of professors who are most interested in what the student is most interested in. The major subject is descriptive merely in that it indicates the student's bent, the faculty group to which he has chosen to go for direction and advice, and in that it guarantees a certain amount of intensive application and specific accomplishment in a given line of work. In general, aside from the intensive study and the advisory relation implied, major subjects in no way indicate essentially different types of education. The Engineering major is clearly differentiated by his subject, but the History major, the German major, the Physiology major, and the Drawing major do not exemplify different types of education. The department in which the student has chosen his major sub-

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ject has the authority to prescribe in major and minor requirements but one-third of the student's entire course of study. That the student is thus expected to take the larger part of his work outside of the major department is an essential feature of the system.

Department divisions at Stanford have been determined for reasons of administrative convenience and efficiency, rather than with reference to major subject needs. While following in general certain natural divisions, the degree of subdivision of the subject varies greatly in the different departments. Some departments cover a range of topics admitting of several distinct major divisions. On the other hand, certain departments do not receive major students at all—and for one of two reasons: either the work of the department is subsidiary to that of some other department, as Applied Mathematics to Engineering, or the department has not been developed to the extent that it attracts or provides for the needs of major students, as in Biblical History and Literature. The latter, indeed, has not even been organized as a separate department, but is merely so scheduled for convenience in grouping. But this is not because of the nature of the subject. Were Biblical History and Literature as fully developed as at Yale, as it might properly be, it would provide ample material for major students; or, as at Chicago, would admit of three quite distinct lines of work or major subjects.

The University schedules only such work as it wishes to present, and allows only such major subject groupings as it believes to contain enough well taught subject matter to be of real value in the training of its students.

THE DEPARTMENT OF DRAWING

In considering the subject of Drawing as a department of university instruction it should be noted that what has at this University been modestly termed Drawing comprehends that whole division of the fine arts which deals with pictorial art and its applications. Through a study of art as expressed in painting and design, through observation and practice in the processes of graphic representation, the aesthetic and creative faculties are stimulated and the student is trained in the appreciation, enjoyment, and expression of truth and beauty in noble and convincing forms.

"It seems to me a great perversion," declared President White, in his inaugural address at the opening of Cornell University (October 7, 1868), "that while so much pains is taken in the great universities of the world to study the second-rate things of literature—conventional poetry and superseded philosophy—there should be no interpretation of the great conceptions of such men as Fra Angelico, and Michael Angelo, and Raphael, and Millais It seems monstrous that there should be so much effort to drill immortals in petty prosody and so little effort to bring them within the reach of those colossal symphonies of Beethoven and Handel."

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President Eliot, of Harvard, in his annual report for 1888-89, says: "The fundamental principle concerning the function of the university in relation to the fine arts seems to be that the ideals of mankind have been and are expressed effectively in song, instrumental music, sculpture, pictures, prints, buildings, utensils, ornaments, and monuments, as well as in written or spoken words, and that the history of civilization can not be understood without a knowledge of the development of the fine arts as well as of literature." Of the Harvard courses in Landscape Design he says (Report 1899-1900): "It is probable that some of these courses in landscape design will be attractive to students who are not looking forward to following that profession; for they are emphatically 'culture' courses, since they open the eyes to natural beauty and the mind to the principles of harmony, contrast, and proportion in scenery, whether natural or artificial."

It is sometimes questioned, even in universities committed to the elective system, whether, for their own good, students should not be forced to study certain subjects whose function is to broaden and expand the mind,—which have no utilitarian purpose whatever. However that question may be answered, there is no difference of opinion as to the desirability of enriching the curriculum with subjects which broaden the horizon and cultivate the love of truth and beauty, and of making studies of this character attractive. This high mission, shared by literature, philosophy, history, and other subjects, belongs equally to the fine arts. In so far as the University provides for the wholesome development of the fine arts on a sound basis and in accordance with university ideals, it adds to those subjects which appeal to the highest faculties of the mind.

But a university whose charter directs its trustees "to establish and maintain an educational system, which will, if followed, fit the graduate for some useful pursuit," need not apologize for emphasizing the practical side of education. On its practical side art study appeals to the university student in the same way that Chemistry, or Engineering, or Education does, in that it offers preparation for useful pursuits and affords opportunities worthy of his best efforts and leading to the highest satisfactions which the educated man can know. It is a mistake to suppose that art appeals only to the leisurely rich or concerns merely the rare and isolated masterpieces in museums and galleries or the works displayed in annual exhibitions. The element of art, or that which should be the element of art, in the common materials, utensils, and furnishings of daily life, represents three-fourths of the cost of these articles. The designing of furniture, embroidery, wall-paper, pottery, gardens, costumes, bookbinding, jewelry, carriages, bric-a-brac, buildings, interior furnishings, etc., so that they shall become objects of interest and pleasure, is of immense importance in the life of the people, viewed either from an aesthetic or a commercial point of view. If the craftsmen of America have not as fine spiritual perceptions, as genuine respect for and pleasure in their

work, as had the craftsmen of the Middle Ages, as have the craftsmen of Japan or the craftsmen of Switzerland and of Germany today, it is due largely to the fact that formative art has been left out of our educational systems.

The great problem which confronts American industrial life today is to make the spirit of industry worthy and craftsmanship artistically sound and inspiring. The necessity of higher ideals of art and more artistic conceptions of craftsmanship is widely recognized. "It is upon you teachers of art and manual training," declares Jane Addams, of Hull House, Chicago, "that we social workers must depend for help in this problem of developing ideals of life other than a desire for money with which unmeaning purchases can be made and an unmeaning social standard obtained. It is you, and you only, that can develop influences that will bring to this army of wage earners something of stimulus toward a larger intellectual life." Manufacturers are keenly alive to the need for art education among our whole people, that the artistic conceptions of the workers in our shops and factories and mills may be raised.

The Massachusetts people were far sighted enough to see this as early as 1869, and they then ordered drawing put into the public schools of the State. The first teachers had to be imported from England. Today the schools of Massachusetts do the best drawing to be found in the Union, and the State maintains ten normal schools offering art instruction, two textile schools, and one normal art school for the training of art teachers alone, while Harvard University has departments of Fine Arts, Architecture, and Landscape Architecture, with enough courses offered to require the full time of a student for five years to complete all of them if he so desired. "The industrial quality is to dominate the future of America," President Eliot has recently said. "Skill is essential. It must be acquired by the millions in our public schools. Eight years of drawing in the elementary schools is now practically thrown away, because it is not continued in the secondary schools and colleges. The schools then find one university, Harvard, anxious to give continuity to this subject."

The past thirty years in America has witnessed the beginning of better things, and the growth of this movement has been largely due to the efforts of the drawing teachers in the public schools. Superintendent Mott, of the Richmond, Indiana Schools, says: "The teachings of drawing in the schools of Richmond during the past twenty years has revolutionized the city, so that people buy and enjoy better things in clothing, furniture, wall-paper and pictures; and the stores cannot sell the same class of goods that they formerly could. One of the events of the year is an art exhibit, held in one of the school buildings, in which a few of the best pictures and craftsman products of the country are placed on view that all people of the city may form their taste in art upon high standards. A purchase fund has been provided from which one really great picture

is purchased each year, and the growth of appreciation from year to year is marked."

In this whole movement the co-operation of the university is of the utmost importance. The leaders need the stimulus, the breadth of view, the intellectual sanity, the higher educational ideals which the university training can give. In recognition of the right of every profession and craft to realize its highest possibilities, in response to the demand of young men and young women for efficient training that shall fit them for useful pursuits, the universities have gradually made room for professional and technical studies, to the immense gain both of the universities and of the professions. Formative art has been one of the last to be conceded this intellectual quality and stimulus. The old notion of art training as imparting a weak and vaguely pleasing parlor accomplishment, and of drawing as an effeminate exercise of no particular value, must be laid aside. The average age in every freshman class but two that has entered Stanford University has been over twenty years. Behind our freshmen are twelve years of educational training, four of them in the high school and covering a wider range of studies and a more intensive, a broader training, than any college half a century ago could offer. The large majority are mature enough to plan their course carefully toward definite preparation for "useful pursuits." It is the privilege and duty of the University, so far as its resources permit, to offer to those who can accept it, who can afford it, the higher training for useful pursuits—the larger intellectual and artistic conceptions, the grasp of truth and proportion, the passion for sound workmanship and high ideals of work.

The Department of Drawing at Stanford occupies but a small part of the whole field of formative art, but by virtue of its high ideals, its quiet work along sound lines, its insistence upon thoroughness, it has done effective work of high educational value in fitting men and women for useful pursuits. Not all of its major students have purposed to use in a professional way the training acquired. Some have continued their studies with a view to the production of works of art in a more ambitious sense. Some have carried their training, and with success, into illustrating, designing, and kindred forms of applied art. But by far the most important service of the department has been in the training of drawing teachers for the public schools. In the development of a higher standard of drawing in the public schools of the State, in the redemption of this work from the flavor of dilettanteism, from ineffective imitation, from inaccuracy, Stanford University has been a factor of the greatest importance.

Not only have its major students occupied positions of importance in our schools, and influenced the education of large numbers of children, but they have created a demand for well-equipped drawing teachers in excess of the supply. One of the functions of a university is to supply

the State with teachers, and in doing so it renders service of a very high order. The value of the service is emphasized when the nation, and particularly the West, stands in such need of art training, and when a department has done such important work in the preparation of teachers for the public schools of the State as has the Department of Drawing at Stanford.

It would be possible, of course, greatly to expand the work of the present department, and the department has fields of usefulness which have not here been pointed out. It is the judgment of the Faculty, however, that the department is now doing work of a grade and importance that warrants its continuance as a major department on the same basis as other departments, and that students who desire to emphasize this line of preparation for usefulness in life should not be required first to meet the major requirements of some other department in which they are only secondarily interested. The Department of Drawing has occupied advanced ground, and has demonstrated the value and importance of Drawing as a serious university study.

THE DEPARTMENT OF HYGIENE

The subject of Hygiene is divisible into two related fields, viz.: (1) Personal Hygiene, including physical education, and (2) Public Hygiene.

(1) *Personal Hygiene*.—This field of instruction includes the direction of field exercises and gymnasium work, together with courses in elementary hygiene, popular medicine, the prevention of infectious diseases, and the like. The need of specially trained teachers of physical education in the public schools is coming to be generally recognized. The demand for such properly equipped teachers is one that it is impossible at present to meet, and this demand is certain to increase. At present the schools are compelled to depend in large part, so far as they are supplied at all, upon the product of private schools of gymnastics and turn-verein schools—schools without proper standards, or equipment, or competent teachers.

The teachers of physical education in our public elementary and secondary schools need as preparation a full college course, with a good background of the sciences, thorough gymnastic training, carefully planned courses in the theory, technique and administration of physical education, and experimental work in the examination and classification of students as to their hygienic needs.

The university offers opportunities for a scientific training impossible in any of the private schools of gymnastics. Recognizing the opportunity for important service to the community a few universities, notably Columbia and the University of Pennsylvania, have begun to make adequate provision for the work in physical education. Other universities are planning the organization of such departments, and while the work is so recent that not many institutions have come to appreciate its importance,

the demand upon the universities is destined to become more and more insistent, and is one which the best universities must prepare to meet.

(2) *Public Hygiene*.—This division of the subject appeals particularly to the universities through the demand for properly trained public health officials and sanitary experts. It also provides training for experts in applied biology who adapt hygienic knowledge to commercial enterprises. The field of preventive medicine is assuming larger and larger importance and creating a distinct profession which is demanding a distinct place in the University curriculum. The English and Scottish universities already offer thorough courses in sanitation and public health leading to the degrees of Bachelor and Doctor in Hygiene or Bachelor and Doctor of Science in Public Health. In America also the movement for better trained public health officers, and for a more scientific oversight of the health conditions of the whole country is making rapid progress. State departments of health are being organized or reorganized, a national department of public health is being earnestly pressed, and city and county health departments are beginning to look for trained officials. There is also an increasing demand for trained men in connection with the operation of various public works and private undertakings, water supply and sewage commissions, municipal laboratories, purification plants, and the like. Already there are some thirty-five occupations of this nature in this country which the appointees hold solely on the basis of scientific merit, and which pay salaries of from \$1200 to \$10,000 per year. The demand for trained public health officials can only be met by the establishment of university departments which, while allied to sanitary engineering on the one side and medicine on the other, are yet distinct from both. These departments will include such subjects as Infectious Diseases, Public Health, Industrial Hygiene, Sanitary Surveying, Sanitary Biology, Industrial Biology, Applied Microscopy and Bacteriology, Hygienic Laboratory Technique, and Administrative Methods. Such a department is already in existence at the Massachusetts Institute of Technology, and its graduates are occupying important positions in the public health service.

A beginning of this work, both in personal and public hygiene, has been made at Stanford. It has not been developed far enough to meet the demand either for trained teachers or trained public health officials. It does not provide for major students, and none are received. The field, however, is an important one, and should the Trustees eventually provide the equipment and teaching force for meeting the public need there will be no question as to the value of the work nor of the standing of the department in the University.

The position of the Faculty may be summarized as follows:

(1) Baccalaureate degrees conferred by the University, and loosely spoken of as degrees in Drawing, in History, in English, in Zoology, etc., do not indicate different types of education. Their significance is bound up with the major subject system. Under this system any subject of

sufficient dignity and importance to be presented at all, and offering a progressive course of study which may profitably occupy the student for a fourth of his time throughout the four years of undergraduate study, may properly be chosen as a major subject. To prohibit any such department from receiving major students would do violence to the major subject system.

(2) While recognizing the need and desirability of increasing the opportunities and facilities for the study of the fine arts in Stanford University, the Faculty believes that the Department of Drawing, as now organized, and with the courses as now taught, is worthy of the recognition and support of the University and competent to provide for the needs of major students.

(3) The Department of Hygiene does not, at present, provide for the needs of major students. Should the department be developed in the future in the direction of personal and public hygiene, fields of great and increasing importance, major students should be received and provided for on the same terms as in other departments of the University.

APPENDIX V.

REPORT OF THE LIBRARIAN

The accessions to the Library for the year have been unusually large, the natural result of the increased appropriation for books. According to the report for last year there were in the Library July 31, 1907, 97,775 volumes, which had been added since its establishment in 1891, at an average rate of about 6000 volumes per year. During the year just closed there have been added 15,746 volumes, as shown by the following table:

Number of volumes reported July 31, 1907.....	97,775
Added by purchase.....	12,219
Added by gift and exchange.....	2,033
Added by binding.....	1,494
	<hr/>
Total volumes added.....	15,746
Less volumes withdrawn.....	690
	<hr/>
Net increase	15,056
	<hr/>
Volumes in Library July 31, 1908.....	112,831

The number of "withdrawn" volumes is made up largely of duplicate United States public documents which were returned to Washington, and other duplicates which have been exchanged, together with some lost and worn-out books. It should be noted, however, that 475 of these were withdrawn prior to August 1, 1907, but seem not to have been deducted from the number reported as in the Library.

The Library is indebted to many institutions and individuals for books given. Particular acknowledgment is due Thomas Welton Stanford for a selection of works on Australia, valued at \$1000; Herbert C. Hoover, of the class of 1895, for a gift of \$1000 for the purchase of material on Australia and the Orient; Dean P. Mitchell, of the class of 1896, for the gift of \$250 to be expended in like manner; to Dr. Estevan E. Chavez, of the Department of Public Instruction, Mexico, through whose courtesy we have continued to receive the series of "Documentos para la historia de Mexico"; to Hon. W. A. January, of San Jose, for a file of the *Santa Clara Argus*; to Dr. David Starr Jordan, the Hon. Horace Davis, and

Mr. Timothy Hopkins, for numerous books and pamphlets, and to many others to whom written acknowledgment has been made.

The sum of \$18,500 was appropriated by the Trustees for the purchase of books. This was apportioned by the Library Committee of the Academic Council, as indicated by the following table:

APPORTIONMENT OF BOOK FUND, 1907-08

Greek	5 units	\$ 471 25
Latin	5 "	471 25
Germanic Languages.....	7 "	659 75
Romanic Languages.....	6 "	565 50
Psychology and Philosophy.....	5 "	471 25
Special Philosophy.....		200 00
English Literature and Philology.....	10 "	942 50
Education	4 "	377 25
History	12 "	1,131 00
Law	12 "	1,131 00
Law, Special.....		3,500 00
Economics	8 "	754 00
Drawing	2 "	188 75
Mathematics	4 "	377 25
Applied Mathematics.....	1 "	94 50
Physics	6 "	565 50
Chemistry	7 "	659 75
General Botany.....	3 "	283 00
Systematic Botany.....	3 "	283 00
Physiology and Histology.....	5 "	471 25
Hygiene	2 "	188 75
Zoology	4 "	377 25
Entomology and Bionomics.....	2 "	188 75
Geology and Mining.....	7 "	659 75
Civil Engineering.....	5 "	471 25
Mechanical Engineering.....	5 "	471 25
Electrical Engineering.....	5 "	471 25
General Literature.....	15 "	1,413 75
Bibliography	3 "	283 00
Hopkins Railway Library.....	3 "	283 00
Memorial Church.....	1 "	94 25
	<hr/> 157	<hr/> \$18,500 00

The urgent need for sets of representative periodicals and transaction of learned societies caused many of the departments to use a large share of their apportionments in the purchase of works of this character. The special appropriation of \$40,000 made for this purpose becomes available

in August, 1908, and will go far in equipping the Library with foundation material so essential for university work.

The Trustees have very generously provided for the future growth of the Library by setting aside the sum of \$500,000, to be designated the *Jane L. Stanford Jewel Fund*, the proceeds of which are to be devoted exclusively to the purchase of books. The income thus assured will eventually place this Library high in the ranks of the university libraries of America.

The unusually large number of accessions for the year has placed the staff under severe strain to keep abreast of the work, but they have kept the current work well in hand, and some progress has been made on arrears. The classifier, Miss Hays, reports 7222 titles, or 13,511 volumes, as classed and shelf listed during the year. Of these 2059 volumes were old books brought within the existing scheme of classification for the first time. Exclusive of the Law Department, there still remain about 14,000 volumes to be classified and permanently catalogued. With assistance from the departments interested, Miss Hays has revised and extended the decimal classification for the divisions of mathematics and philosophy, thus making it more suitable for our needs.

The absence of Miss Hughes during almost the entire year left Miss Sutliff in charge of the catalogue department. She reports a total of 13,811 volumes catalogued, 2269 of which were books hitherto in the Library but uncatalogued. There have been added to the catalogue 33,703 cards, of which 21,000 were typed by the catalogue department, while the remainder were printed cards obtained from the Library of Congress and the A. L. A. Publishing Board. The total number of cards now in the catalogue is 187,703.

The department has been strengthened, and we hope that during the coming year more can be accomplished in clearing away back work. It is very essential that the cataloguing of the Hildebrand collection be accomplished without delay. Likewise the Hopkins Railway Library should be included in the general card catalogue instead of being represented, as much of it now is, only in the printed catalogue issued in 1895. These and other arrears will receive all the time of the staff not required in caring for the current accessions.

In order that the departments might be advised concerning the receipt of books, the Library has undertaken the issuance of a monthly list of accessions. It is prepared by means of a mimeograph, and copies are sent to each department head and to others expressing a desire to have it.

The serial and bindery department has been in charge of Miss Coulter since November 1, 1907, at which time her predecessor, Miss Miles, resigned. The Library is now receiving currently 890 periodicals, of which 796 are subscribed for while 94 come as gifts or by exchange. The space in the periodical reading-room is much overcrowded, but it is proposed to remedy this by removing four of the book-cases now in the

room and transferring the books to the steel stacks which are to be erected in the basement room immediately below. The books will still be accessible and the readers will be much better accommodated.

With the increased amount allowed for binding we have kept pace with the incoming material and have also bound up much of the accumulation of past years. Altogether 2385 volumes have been bound, only 139 of which were old books rebound. The large collection of unbound newspaper files which the Library had accumulated is being bound up and put in shape by the bindery assistant employed since last November. This assistant also mends worn books, inserts pamphlets in covers, and does much other useful and necessary work.

Mr. Goodwin, in charge of the shelf and loan department, reports a total of 125,095 volumes issued over the desk. These figures necessarily fail to indicate the full use made of the Library, for the reason that no record can be kept of the use of the books placed on the open shelves in the reading and reference rooms, nor of those in the seminary rooms and in the departmental libraries. This department has been handicapped by the overcrowded condition of the stacks, necessitating continued shifting to make room for the constant stream of accessions. The additional tier of stacks which the Trustees have provided for, together with the steel stacks in the basement, for which contracts also have been let, will relieve this condition temporarily. During the year we have had occasion to borrow from other libraries 90 volumes, as interlibrary loans. These were obtained from eleven different institutions, although we have most frequently invoked the courtesy of the librarian of the University of California, and are under especial obligations to him.

The Library building suffered considerable earthquake damage, which was only temporarily repaired in 1906. Permanent repairs were undertaken by the Commission of Engineers immediately after the close of the term this summer, together with certain alterations designed to make the building more nearly fireproof. In consequence, all the books in the seminary rooms had to be removed temporarily to the basement, to be again taken upstairs when the repairs and alterations are completed. The disorder and confusion resulting from the building operations have somewhat interfered with the performance of the library work outlined for the summer, but as much has been accomplished as was possible under the circumstances. The Commission of Engineers has been extremely thoughtful and considerate and the Library is under many obligations to it.

There have been several changes in the personnel of the Library staff which should be noted. Miss Haven, supervisor of accessions, resigned to accept a position in the Oakland Public Library. Miss E. M. Coulter, a graduate of this University and of the New York State Library training school, was appointed her successor and assigned to the catalogue department, but was transferred to the serial department in November on the resignation of Miss Miles.

Miss Hughes, chief cataloguer, was granted leave of absence in August on account of ill health and later was compelled to withdraw from the staff for the same reason. Miss Sutliff is now the acting chief cataloguer. The vacancy in the department has been filled by the appointment of Miss F. S. C. James, who comes to us from the library of the Wisconsin State Historical Society, after a year and a half at the University of Washington. Miss Green, reference librarian, was unable to resume work at the beginning of the year by reason of illness, and the position has been filled by Miss Helen Lathrop, a graduate of this University and with a year's training at the New York State Library school. Miss W. H. Bigley and Miss May Franklin, graduates of the University of California and this University respectively, have been added to the staff of the catalogue department. Miss Thompson, of the loan desk, resigned in December, and Miss C. D. Provines, who has had considerable library experience, was appointed to the position. One student assistant was dispensed with, and instead Miss Louise Marcus was appointed for full time duty at the loan desk. Mrs. Ada M. Clark, stonographer, left in March to fill a commercial position in Japan, and Miss M. J. Woodruff was appointed her successor. Mr. Melvin G. Dodge, associate librarian, and acting librarian from 1901 until the writer assumed charge in August, 1907, during the year has given particular attention to the work of the ordering department, but his knowledge and experience have been of material assistance in many administrative details. Mr. Dodge has been granted sabbatical leave for 1908-09, and his work will be carried on by Mr. S. B. Mitchell, who comes to us from the library of McGill University. In view of the added efficiency which comes with the knowledge gained by experience in a particular library, it is to be hoped that it may not again be necessary to record so many staff changes.

In closing I desire to express my deep appreciation of the liberal treatment accorded the Library by the Board of Trustees, and of many courtesies at the hands of the administrative officers. I would record here also my appreciation of the faithful and conscientious work of the staff and their constant loyalty to the best interests of the library.

GEORGE T. CLARK,
Librarian.

APPENDIX VI.

THE MEMORIAL CHURCH.

Pending the restoration of the Memorial Church, services of public worship have been held in the lecture room, commonly called the University Chapel. The chaplain has officiated at seventy-four chapel services and preached except when special preachers have been invited. He has conducted the funerals of two students, a memorial service for Mrs. Stanford, and two "Stanford" weddings.

Acting under instructions from the Board of Trustees the chaplain invited the following special preachers to occupy the pulpit on alternate Sundays during the past academic year:

Rabbi Voorsanger.....	Hebrew
Rev. Burt Estes Howard.....	Unitarian
Rev. Bradford Leavitt.....	Unitarian
Rev. C. H. Lathrop.....	Unitarian
Bishop Moreland.....	Episcopalian
Rev. H. H. Gowan.....	Episcopalian
Archdeacon Stuck.....	Episcopalian
Rev. Norman Guthrie.....	Episcopalian
Rev. W. H. Day.....	Congregational
Rev. Janes W. Strong.....	Congregational
John R. Mott.....	Congregational
Rev. George Burlingame.....	Baptist
Rev. H. J. Vosburgh.....	Baptist
President Faunce.....	Baptist
Rev. H. H. Bell.....	Presbyterian
President Baer.....	Presbyterian
Rev. Jenkin Lloyd Jones, Chicago.....	

Teaching.—The chaplain has given two lectures each week on the Life and Teaching of Jesus Christ, and made addresses at the Thursday evening vesper service.

Social Service.—The chaplain has been the president of the Social Service Club during the past year.

(a) Sections of the Club have been engaged in the study of social problems, social settlements, and political science.

(b) Open meetings of the Club have been held monthly, addressed by men engaged in various forms of social service:

Rev. N. B. W. Gallway, "The Slums of Chicago."

Mr. Chester Rowell, "The University Man and Politics."

Rev. Frank Stone, "The Needs of the Sailor Ashore."

(c) The Club has presented the ideal of social service to the Student Body through two Assemblies.

(d) The Club has been engaged in practical work, collecting books, clothes and money for needy institutions and individuals.

(e) Through the influence of the Club, students are engaged in social service work in San Francisco and elsewhere, and others are preparing for work in University Settlements.

In view of the pending restoration of the Memorial Church, the matter of preaching and preachers is important.

Since Dean Hodges finished his term of residence as special preacher, we have relied on local and visiting Eastern preachers to fill the pulpit of the chapel on alternate Sundays. But the Memorial Church occupies such a position of dignity in the life and thought of the University and the State, its pulpit is so elevated by its freedom, and so capable of profoundly affecting the life of the University, that the chaplain is urging the Board of Trustees to make suitable provision for meeting this need.

D. CHARLES GARDNER,
Chaplain.

APPENDIX VII.

THE LELAND STANFORD JUNIOR MUSEUM

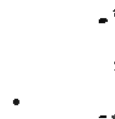
The Museum has not been open to the public during the year 1907-08.

The greater part of the year was spent in the preservation and care of the permanent museum exhibits and the miscellaneous material stored in the basements.

The constant use of the fumigation chamber and a liberal amount of moth preparations have almost entirely eliminated all trouble from both mildew and moths.

Donations were few, among the more important ones being a collection of Egyptian material from the Egypt Exploration Fund Society of London, and a choice collection of Australian stone implements from Mr. Thos. Whitelegge, of Melbourne, Australia.

H. C. PETERSON,
Curator.







LELAND STANFORD JUNIOR UNIVERSITY

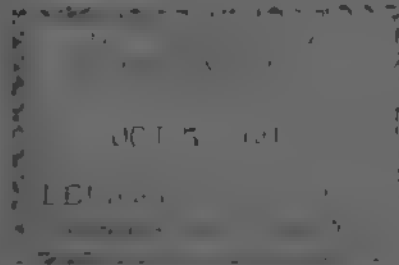
1909

TRUSTEES' SERIES

No. 18

SIXTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1909



STANFORD UNIVERSITY CALIFORNIA
PUBLISHED BY THE UNIVERSITY

1910

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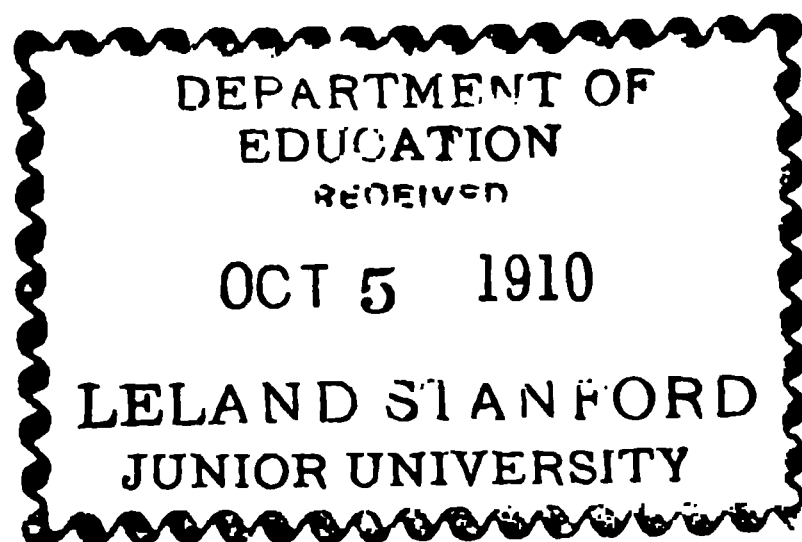
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TRUSTEES' SERIES

No.		Date
1.	The Leland Stanford Junior University. A pamphlet of information.....	(No date)
2.	Address of Jane Lathrop Stanford to the Board of Trustees	February 11, 1897
3.	Address of Jane Lathrop Stanford to the Board of Trustees	June 1, 1897
4.	Address of Jane Lathrop Stanford to the Board of Trustees	May 31, 1899
5.	Address of Jane Lathrop Stanford to the Board of Trustees	October 3, 1902
6.	Address on "The Right of Free Speech," by Jane Lathrop Stanford to the Board of Trustees...	April 25, 1903
7.	Petition filed in proceedings to establish and construe University Trusts.....	June 16, 1903
8.	Decree in proceeding to establish and construe University Trusts	July 3, 1903
9.	Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
10.	Organization of the Faculty of the University.....	March 31, 1904
11.	Report of the Organization Committee of the Trustees upon the Organization of the University Faculty	March 31, 1904
12.	First Annual Report of the President.....	December 31, 1905
13.	Second Annual Report of the President.....	April 30, 1906
14.	Third Annual Report of the President.....	December 31, 1906
15.	Fourth Annual Report of the President.....	December 31, 1907
16.	Trustees' Manual	November 1, 1908
17.	Fifth Annual Report of the President.....	December 31, 1908
18.	Sixth Annual Report of the President.....	December 31, 1909

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REPORT OF THE PRESIDENT

*To the Honorable Board of Trustees,
Leland Stanford Junior University.*

GENTLEMEN :

I have the honor to present the following report, as President of the Leland Stanford Junior University, for the academic year ending July 31, 1909.

In a general way, the work of the past year has been the most satisfactory in the history of the University. The attitude of the Student Body has been most excellent, and the disturbances of the previous year have been followed by an era of good feeling and good work.

The absolute prohibition of alcoholic conviviality has justified itself by a very marked improvement in the character of the scholarship, and in the Student Body at large by a general improvement in the quality of student activities, both athletic and dramatic.

The Engineering Commission of the Faculty, Professors Marx, Durand and Wing, have completed the work assigned to them, and practically all that remains to be restored, of the buildings completed before the earthquake, is the University Church. It is understood that this will be rebuilt in steel, and along the general lines on which it was originally built.

**Work of
Recon-
struction**

There has been during the year no overshadowing incident of any kind, unless we regard as such the beginning of university instruction in medicine. It is true of a university that a lack of historic incident is the

best indication of a healthy condition, on the principle laid down by Montesqueiu, "That people is happy whose history is not written."

The total attendance for the year 1908-09 was 1667. This represents in a general way the presence of 500 women and 400 men in the general courses, and 700 men in the technical and professional courses of Engineering, Law and Medicine, or else preparing for entrance on the special work leading to these.

Attendance
of
Students

The following is an analysis of the Student Body for the year :

BY DEPARTMENTS.

	Graduate	Under Graduate	Special	Total
Greek	3	12	..	15
Latin	11	34	..	45
Germanic Languages.....	8	72	1	81
Romanic Languages.....	4	31	1	36
English	18	143	4	165
Psychology	2	4	..	6
Philosophy	1	2	..	3
Education	8	29	..	37
History	19	119	1	139
Economics and Social Science..	4	129	11	144
Law	21	...	16	37
Pre Legal Course.....	..	211	..	211
Drawing	2	29	2	33
Mathematics	7	19	2	28
Physics	5	6	..	11
Chemistry	8	68	3	79
Botany	7	24	..	31
Physiology and Histology.....	1	50	4	55
Zoology	3	25	2	30
Entomology	1	8	..	9
Geology and Mining.....	4	112	11	127
Civil Engineering.....	..	152	17	189
Mechanical Engineering.....	..	56	7	63
Electrical Engineering.....	2	98	13	113

BY RESIDENCE.

California	1320	South Dakota	3
Washington	42	Maine	2
Oregon	28	Maryland	2
Iowa	23	Massachusetts	2
New York	23	New Mexico	2
Illinois	22	Tennessee	2
Colorado	18	Texas	2
Indiana	16	Vermont	2
Utah	14	Wyoming	2
Hawaii	12	Arkansas	1
Nevada	12	Connecticut	1
Missouri	10	Michigan	1
Ohio	10	North Carolina	1
Arizona	9	North Dakota	1
Montana	8	Rhode Island	1
District of Columbia.....	6	*Japan	6
Kentucky	6	Australia	4
Minnesota	6	Canada	4
Pennsylvania	6	India	3
Wisconsin	6	China	2
Idaho	5	Bermuda Islands	1
Kansas	5	England	1
Nebraska	5	Holland	1
New Jersey	3	Mexico	1
Oklahoma	3	Switzerland	1

*Most of the Japanese students are enrolled as residents of California.

During the year, the President's Conference of Students has been replaced by the University Conference of Men elected by the upper classmen by departments, being chosen in groups from the different departments, from the list of major students. The following is a list of the members of this Conference:

University
Conferences

- | | |
|----------------|----------------|
| S. A. Lindauer | B. W. Upson |
| C. H. Hails | R. L. Hughes |
| M. Y. Malone | D. P. Crawford |
| H. McCowen | R. C. McFadden |
| F. W. McNulty | H. P. Kramer |
| T. A. De Bolt | C. H. Tallant |
| J. B. Swickard | L. J. Hart |

J. W. Roberts
 L. L. Hill
 R. E. Beckley
 A. F. Meston
 A. F. Taggart
 F. C. Merritt

B. Pruett
 E. H. Staber
 T. B. Hine
 H. C. Fisk
 H. V. Poor

The Executive Committee of the Conference is composed of the following:

D. P. Crawford
 C. H. Hails
 H. C. Fisk

F. W. McNulty
 B. W. Upson

The President's Conference of Women, also limited to the upper classes and students of high standing, is made up of the Advisory Board of the Women's League, elected by the women of the University, with other representatives to the number of fifteen, chosen by this Advisory Board. This Conference is composed of the following members:

Maude Howell
 Alice Shinn
 Florence Metzner
 Adaline Wright
 Myrtle James
 Harriet Park
 Jessie C. Morgan
 Ethel Palmer

Helen Campbell
 Lilo McMillan
 Natalie Feraud
 Gem Barker
 Grace Steinbeck
 Elizabeth Buckingham
 Constance Edwards
 Ettila Smith

One of the most important experiments yet tried at Stanford University is the appointment of Mr. Almon Eugene Roth, a recent graduate, as Adviser to the under-classmen of the University. Mr. Roth has a high record as a student and also as an athlete. He was last year president of the Student Body, and in all his relations to the students he has shown singularly good judgment and unusual comprehension of University ideals and purposes. His duties have been left undefined, but are, in general, those of a dean of under-classmen, and of adviser to the first-year students in all their varied relations.

**Appointment
 of
 Student
 Adviser**

Some increase of salary has been made during the past year. This consisted mainly of the addition of about \$250 to each of the salaries of several professors, and \$100 each to the salaries of most of the associate and assistant professors, and of many of the instructors.

**Salaries
and
Faculty
Changes**

In the Faculty of Instruction the following change took effect at the close of the year:

In Latin, Professor Ernest W. Martin is still absent on leave, as Acting Professor of Latin in the University of Nevada. His place has been filled for the year by the temporary appointment of Dr. Phillip Knowlton, of the University of Wisconsin, as instructor in Latin.

In Romanic Languages, Dr. R. E. Pellissier, from Harvard University, has been appointed Acting Instructor.

In Germanic Languages, Assistant Professors Karl G. Rendtorff and William Alpha Cooper have been promoted to the rank of Associate Professor.

In English, Assistant Professor Raymond MacDonald Alden has been promoted to the rank of Associate Professor.

In Psychology, Assistant Professor Lilien J. Martin has been promoted to the rank of Associate Professor.

In History:

Dr. Herbert Eugene Bolton has been appointed Professor of Modern History. Professor Bolton is a graduate of the University of Wisconsin, and has for some years held a professorship in the University of Texas. He is the author, among other things, of important papers on the history of Mexico and the Spanish occupation of the Southwest, in which he is one of the leading authorities.

Dr. Edward Benjamin Krehbiel has been appointed Associate Professor in History. Professor Krehbiel is a graduate of the University of Chicago, in which institution he was Assistant Professor of European History.

Instructor Payson Jackson Treat has been made Assistant Professor. Dr. Treat has returned, after an absence of one year, as instructor in Harvard University, to take charge of the work in the History of Australasia and the Far East. Dr.

Treat is a graduate of Wesleyan University, having taken an advanced degree in Columbia, and having spent some time as a graduate student at Stanford University.

Dr. Henry L. Cannon has been granted sabbatical leave of absence, his place being filled by Dr. Sedley Lynch Ware, as instructor.

In Economics, Assistant Professor Harry A. Millis has been absent for the year, as assistant to the National Bureau of Immigration.

In Law, Professors Arthur Martin Cathcart and Wesley Newcomb Hohfeld have been advanced to the rank of Professor; and Assistant Professors Charles Andrews Huston and Joseph Walter Bingham have been advanced to the rank of Associate Professor.

For the year 1909-10, Professor Charles Henry Huberich has exchanged work with Professor Howard L. Smith, of the University of Wisconsin.

In Philosophy, Associate Professor Henry Waldgrave Stuart has been advanced to the rank of Professor.

In Applied Mathematics, Assistant Professor William Albert Manning has been permitted to exchange positions for the year with Mr. E. W. Ponzer, who holds a similar place in the University of Illinois.

In Physics, Assistant Professor Frederick John Rogers has been advanced to the rank of Associate Professor.

In Chemistry, Associate Professor Robert Eckles Swain has been granted sabbatical leave of absence for the year. Mr. George DeForest Barnett, a graduate of Stanford University, has been appointed instructor; and Mr. Fred Finley Fitzgerald, also a graduate of Stanford University, and lately instructor in Chemistry in the Cooper Medical College, has been made acting instructor for the year in charge of Physiological Chemistry, in the absence of Dr. Swain.

In Botany, Instructor Leonas Lancelot Burlingame has been advanced to the rank of Assistant Professor.

In Hygiene, Mr. Henry W. Maloney has been made instructor in Physical Training.

In Entomology, Miss Mary Isabel McCracken and Mr. Rennie Wilbur Doane, Instructors, have been advanced to the rank of Assistant Professor.

In Bionomics, Mr. Robert Earl Richardson, Instructor, has tendered his resignation, his work being taken for the year by Assistant Professor Walter Kenrick Fisher, of the Department of Zoology, and by Mr. William Francis Thompson, Student Assistant.

In Geology and Mining, Associate Professors John Flesher Newsom and James Farley McClelland have been advanced to the rank of Professor; and Dr. Newsom has been granted leave of absence for the current year.

Mr. Galen H. Clevenger has been made Acting Assistant Professor of Metallurgy. Mr. Clevenger is a thoroughly trained metallurgist, a graduate of the University of South Dakota, and of Columbia. A few years ago he held an instructorship at Stanford.

In Mechanical Engineering, Robert Long Daugherty, graduate of Stanford University, has been appointed instructor. Associate Professor Guido Hugo Marx has been promoted to the rank of Professor of Machine Design.

In Zoology, Associate Professor Harold Heath has been promoted to the rank of Professor of Invertebrate Zoology.

In Physiology, Associate Professor Frank Mace McFarland has been promoted to the rank of Professor of Histology.

In the Library, a number of changes have taken place, which will be mentioned in the report of the Librarian.

The establishment of the Department of Medicine was completed at the end of the academic year 1908-09. The property of the Cooper Medical College has been offered to the Board of Trustees of the University, and it has been

accepted. It was arranged that the work of the year should begin at Stanford University in August, 1909, the fourth year students in the Departments of Physiology or Chemistry being eligible to become members of the first-year class in the Department of Medicine.

**Medical
Department**

The second of a series of monographs by member the Faculty, known as the "University Series," was publi

University and Faculty Publications during the present year, "Opisthobranchiate lusca of the Branner-Agassiz Expedition, Brazil," by Frank Mace McFarland, Professor of Histology.

The following is a list of the publications of individual members of the Faculty for the year:

ADAMS, EPHRAIM DOUGLASS:

English interest in the annexation of California: *American Historical Review*, 14; July, 1909.

Sir Spencer Walpole as historian: *The Dial*, 46; Feb. 16, 1909.

ALDEN, RAYMOND MACDONALD:

The development of the use of prose in the English drama, 1600-1800: *Modern philology*, 7; July, 1909.

In defence of the denominational college: *Nation*, 87; Nov. 26, 1908.

Introduction to poetry for students of English literature: *N. Y. Holt*, 1909.

Points in Sidney's versification: *Nation*, 88; Feb. 18, 1909.

Professors, students and friends: *Sequoia*, 18; Dec., 1908.

Why the chimes rang. New ed. of "Knights of the silver shield:" *Indianapolis; Bobbs-Merrill*, 1908.

ALLARDICE, ROBERT EDGAR:

On the locus of the foci of a system of similar conics through three points: *Edinburgh Mathematical Society, Proceedings*, 27; 1908-09.

ANDERSON, MELVILLE BEST:

Larrey—A memory: *The Chaparral, Memorial no.*, Jan. 31, 1909.

BASSETT, LEE EMERSON:

Stanford, its work and its future: *Sacramento Bee, Educational no.*, July 12, 1909.

BINGHAM, JOSEPH W.:

Some suggestions concerning legal cause at common law: *Columbia Law Review*, 9; Jan. and Feb., 1909.

BRANNER, JOHN CASPER:

Bibliography of geology, mineralogy and paleontology of Brazil: *Bulletin of the Geological Society of America*, 20; Feb. 12, 1909.

Bibliography of the geology of Arkansas: *Geological Survey of Arkansas, Annual report* 1909.

The Bogoslof Islands *Science*, 28; Oct. 9, 1908.

The Delos Arnold collections of natural history specimens: *Science*, 28; Nov. 20, 1908.

Annie Law and Fannie Law Andrews: *Maryville College Monthly*, Dec., 1908.

The economic geology of the diamond bearing highlands of the state of Bahia, Brazil: *Engineering and Mining Journal*, vol. 87, 981-987; 1031-1033, ill. New York, May 15 and 22, 1909; also separately, New York, 1909.

Loyalty: *Popular Science Monthly*, 73; Dec., 1908.

Manganese deposits of Morro da Mina, Brazil: *Engineering and Mining Journal*, 86; Dec. 19, 1908.

O problema das seccas do Norte do Brazil (The drouth problem of Northern Brazil): *Boletim do Ministerio da Industria, Viação, Obras Publicas*, I, No. 1, pp. 83-110, ill; Rio de Janeiro, April, 1909.

Outline of the geology of the black diamond region of Bahia, Brazil: *Australasian Association for the Advancement of Science*; Report for 1909.

Some facts and corrections regarding the diamond region of Arkansas: *Engineering and Mining Journal*, 87; Feb. 13, 1909.

With J. F. Newsom and Ralph Arnold: *Santa Cruz Folio*, California; Folio 163, U. S. Geological Survey; Washington, March, 1909.

Contributions to the "Report of the State Earthquake Investigation Commission," in two volumes and atlas: *Carnegie Institution*, 40, ill; Washington, 1908.

BURLINGAME, LEONAS LANCELOT:

The staminate cone and male gametophyte of Podocarpus: *Botanical Gazette*, 46; Sept., 1908.

CAMPBELL, DOUGLAS HOUGHTON:

The embryo-sac of Pandanus: *Torrey Botanical Club Bulletin*, 36; 1909.

The new flora of Krakatau: *American Naturalist*, 43; Aug., 1909.

The origin of a land flora: *ibid.*, 42; Nov., 1908.

CHARTERS, SAMUEL BARCLAY, JR.: (With Hillebrand, W. A.)

Reduction in capacity of polyphase motors due to unbalancing in voltage: *American Institute of Electrical Engineers, Proceedings*, 28; June, 1909.

CLARK, ARTHUR BRIDGMAN:

Art as related to the industries: *National Educational Association, Proceedings*; July, 1909.

Unification of effort in the manual arts: *Sierra Educational News*, 5; 1909.

University entrance credits in art: *National Educational Association, Proceedings*; July, 1909.

CLARK, GEORGE ARCHIBALD:

Commercial branches in the high school curriculum: *Educational Review*, 38; June, 1909.

COOPER, WILLIAM ALPHA:

Goethe's quotation from Hutten in *Dichtung und Wahrheit*: *Modern Language Notes*, 24; March and April, 1909.

Notice of vol. 13 of Suphan's edition of Herder: *Nation*, 88; June, 1909.

CROSS, IRA B.:

The case against socialism—Review: *American Academy of Political and Social Science, Annals*, 32; Nov., 1908.

Co-operation at home and abroad, by C. R. Fay—Review: *ibid.*; Jan., 1909.

First Coast Seamen's Unions: *Coast Seamen's Journal*, 21; 1908.

Labor papers of the Pacific Coast: *Labor Clarion*, 7; June 5, 1908.

Our irrational distribution of wealth by B. C. Matthews—Review: *American Academy of Political and Social Science, Annals*; March, 1909.

Strike statistics: *American Statistical Association, Quarterly publications*, 11; June, 1908.

CUBBERLEY, ELLWOOD P.:

Changing conceptions of education: *Southern California Teachers' Association, Proceedings*, 16; 1908.

Changing conceptions of the High School: *ibid.*

Congress of arts and sciences, Universal exposition, St. Louis, 1904: vol. 8.

Education and religion. Review: *Educational Review*, 35; 1908.

Educational Legislation: *Western Journal of Education*, 14; Feb., 1909.

Improving county school supervision: *Sierra Educational News*, 5; Feb., 1909.

Teachers' rights, tenure and the courts: *Western Journal of Education*, 13; Nov., 1908.

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Hans Günther. *Romantische Kritik und Satire bei Ludwig Tieck*—Review: *Literarisches Zentralblatt*, 60; Jan. 30, 1909.

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More *Tipula* with vestigial wings: *Psyche*, 16; Feb., 1909.

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Notes on some Society Islands mosquitoes: *The Canadian Entomologist*, 40; Nov., 1908.

Variations in the wing venation in some Tipulidæ: *Entomological News*, 19; Nov., 1908.

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DURAND, WILLIAM FREDERICK:

Resistance and Propulsion of Ships, Ed. 2, rev. N. Y. Wiley, 1909.

ELLIOTT, ORRIN LESLIE:

Concerning an episode in college discipline: *Sequoia*, 18; Sept., 1908.

How to be happy though a student: *ibid.*, 18; Dec., 1908.

ELMORE, JEFFERSON:

Book of Latin prose composition: *Boston, Sanborn & Co.*; 1909.

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Article on apa for Campbell & Burnet's *Lexicon Platonicum*: *Oxford, Clarendon Press* (Published in advance in the prospectus).

The church and education: *Pacific Churchman*, 44; May 15, 1909.

The comedies of Terence, ed. by Ashmore—Review: *Classical Weekly*; March 6, 1909.

Woman in all ages and in all countries; vol. I, Greek Women, by Mitchell Carroll—Review: *ibid.*; Oct. 17, 1908.

(With Richardson, L. J.) The Phormio of Terence, simplified and edited for the use of schools: *Boston, Sanborn & Co.*; 1909.

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Necessary changes in the nomenclature of starfishes: *Smithsonian Miscellaneous Collections, quarterly issue*, 52; 1909.

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Die älteste englische akademie: *Anglia*, 32; July, 1909.

FOSTER, BENJAMIN OLIVER:

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Loyalty—How far? *Sequoia*, 18; April, 1909.

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(With Charters, S. B., Jr.) Reduction in capacity of polyphase motors due to unbalancing in voltage: *American Institute of Electrical Engineers, Proceedings*, 28; June, 1909.

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Nature of stockholders' individual liability for corporation debts: *Columbia Law Review*, 9; April, 1909.

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- A view of the San Francisco situation: *Liberator*, 1; June 26, 1909.

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 On the history of palatal ñ in French with special reference to o and open e: *Modern Language Association of America*, 24; Sept., 1909.

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- Bowman's place in Stanford letters: *The Chaparral, Memorial No.*; Jan. 31, 1909.

NEWSOM, JOHN FLESHER:

(With Branner, J. C., and Arnold, Ralph) Santa Cruz folio, California: *U. S. Geological Survey, Folio*, 163; 1909.

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SEWARD, SAMUEL SWAYZE, JR., *ed.*:

Narrative and lyric poems for students: *N. Y., Holt*; 1909.

SNYDER, JOHN OTTERBEIN:

Description of *Trachypterus seleniris*, a new species of ribbon fish from Monterey Bay, Cal.: *Academy of Natural Sciences of Philadelphia, Proceedings*, 60, pt. 2; May-June, 1908.

Descriptions of eighteen new species and two new genera of fishes from Japan and the Riu Kiu Islands: *U. S. National Museum, Proceedings*, 35; 1908.

Descriptions of new genera and species of fishes from Japan and the Riu Kiu Islands: *ibid.*, 36; 1909.

The fishes of the coastal streams of Oregon and Northern California: *U. S. Bureau of Fisheries, Bulletin*, 27; 1907.

Notes on two rare California fishes, *Rimicola eigenmanni* and *Plagiogrammus Hopkinsi*: *U. S. National Museum, Proceedings*, 35; 1908.

(With Jordan, D. S.) Description of a new species of whitefish (*Coregonus oregonius*) from the McKenzie River, Oregon: *ibid.*, 36; 1909.

STARKS, EDWIN CHAPIN:

On a communication between the airbladder and the ear in certain spinyrayed fishes: *Science*, 28; Oct. 30, 1908.

STUART, HENRY WALDGRAVE:

Principia Ethica, by G. E. Moore—Review: *American Journal of Sociology*, 14; March, 1909.

TOWNLEY, SIDNEY DEAN :

Compendium of variable stars (Note) : *Astronomical Society of the Pacific, Publications*, 21 ; June, 1909.

Vacation pastimes : *ibid.*, 20 ; Aug., 1908.

Variation of latitude (Note) : *ibid.*, 21 ; April, 1909.

VEBLEN, THORSTEIN B. :

The evolution of the scientific point of view : *University of California Chronicle*, 10 ; Oct., 1908.

Fisher's "The rate of interest" : *Political Science Quarterly*, 24 ; June, 1909.

On the nature of capital investment, intangible assets, and the pecuniary magnate : *Quarterly Journal of Economics*, 23 ; Nov., 1908.

WOODWARD, FREDERIC C. :

The practicability of student self-government : *Sequoia*, 18 ; Jan., 1909.

YOUNG, ALLYN A. :

The investments of life insurance companies, by L. W. Zartman—
Review : *Political Science Quarterly*, 24 ; March, 1909.

The present summer, like the last, has been spent by the President, as United States representative of the International Fisheries Commission, created under the Treaty of April 11, 1908, between Great Britain and the United States.

During the summer, Professor Gilbert was also engaged in the investigation of the salmon under the auspices of the International Fisheries Commission.

Respectfully submitted,

DAVID STARR JORDAN,

December 31, 1909.

President.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK.

During the year of 1908-09 the faculty of the Department of Greek was made up of Augustus Taber Murray, Professor; Henry Winchester Rolfe, Associate Professor, and Edward William Hope, Instructor.

The following courses were given:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Murray	15. Plato and Demosthenes.....	3	6	...
Murray	16. Theucydides	3	...	5
Murray	17. Teacher's Course	2	4	...
Murray	19. Greek Testament	2	...	8
Murray	23. Seminary	4-6	4	4
Murray	24. Rapid Reading	2	4	4
Murray	25. Introductory	3	...	5
Murray	26. The Greek Epic.....	2	75	...
Murray	27. Greek Tragedy	2	...	90
Rolfe	6. Greek Geography	1	...	8
Rolfe	7. Homer	3	3	...
Rolfe	8. Euripides, Lucian, etc.....	3	...	3
Rolfe	10. Greek History	2	64	...
Rolfe	12. Greek Art	2	...	67
Hope	1. Elementary	3	8	6
Hope	2. Xenophon, Plato, Lysias.....	3	11	...
Hope	3. Odyssey, Herodotus	3	...	9
Hope	4. Composition and Sight Trans- lation	2	8	4
Hope	13. Greek Private Life.....	2	...	24

Courses 23 and 24 were for graduate students; courses 10, 12, 13, 26 and 27 were lecture courses presupposing no knowledge of Greek.

AUGUSTUS T. MURRAY,
Professor of Greek.

LATIN.

During the academic year 1908-09 the faculty of the Department of Latin consisted of Professor Henry Rushton Fairclough and Assistant Professors Jefferson Elmore and Benjamin Oliver Foster. Associate Professor Henry Winchester Rolfe, of the Greek Department, co-operated in the work of instruction. Miss Esther Jean Spencer acted as Assistant and also had charge of one class throughout the year. Assistant Professor Ernest Whitney Martin was given leave of absence for the year, to enable him to serve as Acting Professor of Latin in the University of Nevada.

The number of major students in Latin was 41 for the first semester and 42 for the second. Of these, 10 were graduates; 14 received the A.B. degree and 5 that of A.M.

The courses of instruction given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Spencer.	1. Virgil and Cicero.....	3	17	16
Fairclough, Foster	2. Terence, Cicero and Horace..	3	13	13
Elmore	2. Terence, Cicero and Horace..	3	12	17
Fairclough	3. Terence, Cicero and Justin- ian	2	19	17
Foster	4. Prose Composition I.....	2	17	18
Elmore	5. Horace, Satires and Epistles..	3	12	...
Elmore	6. Livy and Tacitus.....	3	...	13
Fairclough	7. Prose Composition II, with Sallust and Cicero's Sec- ond Philippic	2	19	13
Foster	8. Roman Comedy	2	8	...
Elmore	9. Cicero's Letters	2	...	12
Foster	10. Pliny's Letters	2	5	...
Fairclough	12. Lucretius	2	...	14
Elmore	14. Juvenal and Martial.....	2	10	...
Rolfe	15a. Quintilian	2	7	...
Rolfe	15b. Roman Literature	2	...	5
Fairclough	17. Teachers' Course	2	...	13
Foster	20. Cæsar's Civil War.....	2	...	6
Fairclough	22. Seminary (Terence)	2to4	8	11
Foster	23. Roman Elegy	2	6	8
Elmore	28. History of Classical Philol- ogy	1	6	...
Elmore	33. Roman Political Institutions..	2	...	37

HENRY RUSHTON FAIRCLOUGH,
Professor of Latin.

GERMAN.

During the academic year 1908-09 the teaching staff of the department consisted of George Hempl and James Owen Griffin, professors; Karl G. Rendtorff, William Alpha Cooper and Macy Millmore Skinner, assistant professors; Bruno Boezinger and Hermann Hilmer, instructors. Professor Cooper being on leave of absence in Europe, his place was filled by Dr. George Henry Danton, with the rank of acting assistant professor.

There were registered in the department during the year 81 major students, of whom 8 were graduates, 72 undergraduates, and one a special student. Of the graduate students, two were candidates for the Master's degree, and at the close of the year this degree was conferred upon Miss Ruth La Dow.

The following tabular statement of the number of students pursuing the various courses:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Skinner, Danton, Boezinger, Hilmer..	1. Elementary	5	77	68
Griffin, Skinner, Danton, Boezinger, Hilmer	2a. Second year reading.....	3	124	117
Hempl, Griffin, Danton, Boezinger	2b. Second year composition.....	2	61	54
Griffin, Rendtorff	3. Classical Drama	3	64	45
Griffin	4. Modern Drama	2	35	33
Skinner	5. Modern Novels	2	27	13
Hempl	6. Advanced Grammar	2	23	21
Boezinger, Hilmer	7. Composition	2	33	30
Rendtorff	8. Advanced Composition	2	18	18
Danton	9. Lessing	3	10	6
Skinner	10. Schiller	3	7	9
Rendtorff	13. Literature	2	20	19
Hempl	14. Teaching	2	...	20
Rendtorff	16. Middle High German.....	2	4	4
Hempl	18. Old Norse	2	5	4
Hempl	20. The Runes	2	2	...
Rendtorff	21. German Civilization	2	10	6

GEORGE HEMPL,
Professor of Germanic Philology.

ROMANIC LANGUAGES.

During the year 1908-09 the faculty of the department consisted of Professor John Ernst Matzke, Associate Professor Oliver Martin Johnston, Assistant Professors Colbert Searles, Clifford Gilmore Allen and Albert Guérard, Instructor Ernest George Atkin and Acting Instructor Henry Bluestone.

In addition, Mrs. Sophie Boezinger assisted in the correction of the French exercises and Miss Mildred Smith had general supervision of the phonograph work during the first semester; in the second semester this position was filled by Miss Hazel Lorena Michod.

The following table gives an outline of the courses offered, with the attendance during either semester:

INSTRUCTOR	COURSE	No. of Sections	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Johnston, Searles, Guérard, Bluestone ...	1. Elementary French....	5	3	115	100
Johnston, Searles	2. Modern French Syntax.	2	2	36	30
Searles, Bluestone ...	3. Modern French Reading	2	2	87	83
Guérard	3a. Intermediate French...	1	2	6	9
Guérard, Atkin, Searles	4a. French Conversation...	2	3	28	22
	4b. Phonograph .....	..	..	16	16
Guérard	5. Adv. French Comp....	1	2	13	9
Guérard	6. French Themes.....	1	1	4	3
Johnston	7. Classical French.....	1	3	44	41
Searles	8. Classical French Lit...	1	2	12	5
Matzke	9. 19th Cent. French Lit..	1	2	9	2
Guérard	10. Rousseau	1	2	8	..
Allen, Atkin...	13. El. Spanish	3	3	107	72
Allen	14. Mod. Spanish Syntax..	1	2	27	23
Atkin	15. Mod. Spanish Reading.	1	2	37	28
Allen	16a. Spanish Conversation..	1	3	9	7
	16b. Phonograph .....	..	..	3	2
Allen	19. Classical Spanish.....	1	2	7	5
Johnston	21. Elementary Italian.....	1	3	12	10
Johnston	22. Advanced Italian.....	1	2	6	4
Matzke	26. Old French Lit.....	1	3	3	3
Matzke	27. French Hist. Gram....	1	3	3	3
Matzke	28. Old French Texts.....	1	2	3	3

Professor Guérard gave a course of public lectures in French on "France and Her Art and Architecture," illustrated by stereopticon views, and he directed the meetings of the French Club.

The number of major students registered in the department was 36; of this number 4 were recommended for the degree of A.B.

Toward the end of the year Mr. Robert Pellissier was appointed acting instructor for the following year, in the place of Mr. Henry Bluestone, whose appointment expired with the end of the academic year.

JOHN ERNST MATZKE,
Professor of Romanic Languages.

ENGLISH LITERATURE AND RHETORIC.

The faculty of the department consisted of Professors Melville Best Anderson and Alphonso Gerald Newcomer, Assistant (now Associate) Professor Raymond Macdonald Alden, Assistant Professors Samuel Swayze Seward, Jr., Howard Judson Hall, Lee Emerson Bassett, Henry David Gray and William Dinsmore Briggs, Instructors John Kester Bonnell and Theresa Peet Russel, and Assistants Anna Matilda Bille, Carrie Amanda Goodhue, Alice Kimball and Harry Lawrence Price.

During the year, Dr. Alden was made associate professor. Mr. Bonnell returned after several years' absence, taking the place of Instructor Manchester.

The following courses were given :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Hall, Gray, Bonnell, Bille	A. Elementary Composition (3 sections)	1	113	70
Bassett, Bonnell	1. Vocal Expression (2 sections)	3	98	76
Briggs, Russell.	2. English Composition (3 sec- tions)	2	120	117
Newcomer, Hall	2A. English Composition (2 sec- tions)	2	41	34
Seward, Gray..	2B. English Composition (2 sec- tions)	2	34	64
Seward	3. Note Taking	1	69	39
Newcomer	4. Modern English	1	43	36
Gray	6A. Types of Poetry.....	3	66	70
Alden	6B. Introduction to Poetry.....	3	31	...
Russell	7. Humor and Satire.....	3	84	42
Gray	9. English Bible	3	...	140
Anderson, New- comer, Gray, Hall, Bassett.	10. Shakespeare (4 sections)....	3	140	121
Bassett	14. Vocal Interpretation	2	...	16
Bassett	15. Public Speaking	2	15	19
Hall	21. Advanced Composition	2	18	11
Alden.	22. Narration	1	21	17
Briggs	24. Argument	3	30	30
Alden	25. Oral Debate	2	18	18
Seward	28. Teacher's Course	2	18	22
Flügel, Briggs..	31. Early English Literature....	3	25	25
Alden, Hall....	32. Later English Literature....	3	32	32
Seward	33. Early 19th Century Literature	1	7	7
Seward	37. English Drama	2	5	4
Gray	38. English Novel	2 or 3	27	27
Alden	39. Prosody	2	...	33
Newcomer	42. Milton	3	27	...
Anderson	45. European Literature	3	35	29
Alden	52. Theory of Poetry.....	2	5	5
Anderson	55. Shakespeare	3	9	9
	Total.....		1121	1113

In addition to these, Dr. Briggs gave two courses in the Department of English Philology.

The number of students registered in the department was 165, of whom 5 were special students and 14 graduates. Twenty-four students received the degree of A.B. and four the degree of A.M.

In February, readings were given before the classes in Shakespeare by Miss Katherine Everts. Lectures and readings at institutes and graduation exercises were given at various times and places by Professors Newcomer, Alden, Seward and Bassett. Assistant Professor Seward gave several courses at the summer session of 1909 at the University of Oregon.

ALPHONSO G. NEWCOMER,
Professor of English.

ENGLISH PHILOLOGY.

During the academic year 1908-09 Dr. William Dinsmore Briggs of the Department of English Literature and Rhetoric conducted the elementary course in Anglo-Saxon and a seminary course in Beowulf, and, as before, I wish to express my obligations to him for his faithful and successful assistance.

The central work of the department was the research course, which aimed to give to the future teachers of English some drill in the independent working out of fresh material in the line of philological investigation. The term "Philology" was taken in its fullest and broadest sense, and the work of the second semester was devoted to the critical examination of the methods of recent historians of literature.

The following is a list of the courses given during the year:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem
Briggs	1. Anglo-Saxon	3	12	...
Flügel	2. Chaucer (Elementary)	2	48	...
Flügel	3. Early Literature	3	27	...
Flügel	4. Middle English Exercises....	3	12	...
Briggs	6. Beowulf	2	...	4
Flügel	8. Chaucer (Advanced)	2	...	20
Flügel	9. Ballads	2	...	7
Flügel	11. Research	3	12	11
	Total.....		111	42

EWALD FLÜGEL,
Professor of English Philology.

PHILOSOPHY.

The faculty of the department for the year 1908-09 consisted of Associate Professor Henry Waldgrave Stuart, who acted as executive head, and Assistant Professor George Holland Sabine.

The courses conducted, with the registration in each, were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Stuart, Sabine..	1. Elementary Logic	3	65	...
Stuart	2. Elementary Ethics	3	37	...
Sabine	3. History of Philosophy.....	3	11	9
Sabine	4. XIX Century Philosophy....	3	1	...
Sabine	5. Philos. in XIX Cent. Life....	2	...	48
Stuart	6. Advanced Logic	3	...	17
Stuart	7. Historical and Practical Ethics	3	...	22
Sabine	8. History of Evolution, etc.....	2	...	13
Stuart	10. Problems of Mod. Philosophy	2 or 3	...	3

Nineteen departments of the University were represented in the total registration for the above courses.

In April, Dr. Stuart was advanced to the rank of professor, and provision, apparently adequate for the present, was made for assistance in the routine work of the elementary courses. During the summer vacation, Dr. Sabine was engaged upon his study of British Associationism and Dr. Stuart conducted courses in Ethics for the first half of the summer quarter at the University of Chicago.

HENRY W. STUART,
Professor of Philosophy.

PSYCHOLOGY.

The faculty of the department consisted of Frank Angell, professor, and Miss Lillian Jane Martin, associate professor. The following is the attendance in the several courses offered by the department during the year :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Angell	1. General Psychology	4	88	...
Martin, Angell.	2. Beginners' Laboratory	3	20	18
Angell	3. Abnormal Psychology	2	...	21
Angell, Martin.	4. Advanced Laboratory	3	7	7
Martin	5. Applied Psychology	2	...	90
Martin	6. Applied Psychology	3	10	...
Martin	8. Readings in German Psychol- ogy	2	8	...
Angell, Martin.	9. Research work	Not fixed	1	1

As far as the first and second year laboratory work is concerned, the department is now working at about the upper limit of its equipment and teaching force.

The laboratory is used, of course, as far as possible with the lecture classes, but the problem here is the one common to most American universities, that of making laboratory or oral teaching efficient with classes of eighty to one hundred with but one instructor.

FRANK ANGELL,
Professor of Psychology.

EDUCATION.

The work of the department was carried on during the year 1908-09 by the following staff: Ellwood Patterson Cubberley, professor; John Andrew Bergström, professor (for second semester only); Percy Erwin Davidson, assistant professor; Maurice Elmer Dailey, lecturer, and Jesse Brundage Sears, assistant.

During the year the following courses were offered by the members of the department:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cubberley	1. Public Education in America.	2	94	...
Davidson	2. Educational Theory	2	...	87
Cubberley	3. History of Education in Europe	3	60	70
Bergström	4. Educational Psychology	3	...	46
Bergström	7. Secondary Education	2	...	53
Cubberley	8. City School Administration..	2	...	13
Bergström	9. School Hygiene	2	...	10
Cubberley	10. State School Administration.	3	16	14
Davidson	13. Logic of Education.....	2	21	21
Davidson	15. Moral Education	2	31	...
Davidson	16. Educational Theory; Adv. Course	2	12	12
Davidson	17. The Curriculum (Saturday Course).....	2	25	22
Dailey	18. The Training of Teachers...	1	...	9
Davidson	19. Thesis Work	1	1	...
Cubberley	20. Special Courses	2-5	...	3
Davidson	20. Special Courses	3	2	3
Cubberley	21. Practice Teaching (In Palo Alto)	4	15	19
Dailey	21. Practice Teaching (In San Jose)	4	1	4
Cubberley	22. Journal Club	½	23	25

The coming of Professor Bergström, which was expected to relieve the pressure of numbers in the classes, did not have that effect. The classes were as large after he came as before, and the present year finds them still larger. The problem of additional assistance is still before us, and must be met before long. Another professor will be needed before long to round out the work of the department, and it is probable that we shall need to appoint a number of student assistants, on small pay, to act as quiz masters with sections of the larger classes. By means of syllabi, required text-books, required library readings, set papers and examinations, we manage to keep the students at work, even in the larger classes, but the amount of work involved is large.

ELLWOOD P. CUBBERLEY,
Professor of Education.

HISTORY.

The faculty of the department for the year 1908-09 consisted of Professors Ephraim Douglass Adams, James Albert Woodburn and Jesse Macy; Assistant Professor Henry Lewin Cannon, and Instructors Percy Alvin Martin, Sedley Lynch Ware and John Hamilton Blair. The many changes in the staff of the department, due to resignations and to the granting of leaves of absence in the spring of 1908, made it necessary to arrange the work of the year upon a temporary basis. In this connection, Instructors Ware and Blair were engaged for one year and Professors Woodburn of Indiana University, and Macy of Iowa College for the second semester.

Professor Arley Barthlow Show was absent on leave throughout the year, spending the larger portion of his time in study at Washington, D. C., and in Germany. Instructor Payson Jackson Treat was granted leave of absence for the year and was upon the staff of Harvard University. Mr. Treat has been promoted to an assistant professorship. Professor E. D. Adams was granted a brief leave to enable him to give the Albert Shaw lectures on Diplomatic History at Johns Hopkins University. These lectures, ten in number, were delivered during the first two weeks in May.

For 1909-10 Assistant Professor Cannon has been granted leave of absence for the year, and is pursuing work in England. Mr. Sedley L. Ware has been retained to carry a portion of Professor Cannon's class room work. Dr. Herbert Eugene Bolton has been appointed to a full professorship in American History. He graduated from the University of Wisconsin in 1895, received the degree of Doctor of Philosophy from the University of Pennsylvania in 1899, and has been connected with the University of Texas since 1901. Dr. Edward Benjamin Krehbiel has been appointed associate professor of History, the larger part of his work being in the Modern European field. He graduated from the University of Kansas in 1902, received the degree of Doctor of Philosophy in 1906 from the University of Chicago, and since has been on the teaching staff of that university.

After a year of temporary arrangements, the department is now again on a more permanent, and hence more satisfactory footing, though the work in American Colonial History is not yet provided for. This work is of extreme importance and the securing of a competent teacher of the subject should not be delayed beyond the present year.

The following is a list of the courses given in 1907-08, with hours of credit and attendance each semester :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cannon	1. Training	1	37	33
Ware	3a. Middle Ages.....	3	76	87
	3b. Middle Ages.....			
Cannon	4a. English History.....	2	127	132
	4b. English History.....			
Adams	5a. European History.....	2	109	114
	5b. European History.....			
Blair	6. American Revolution	3	82	...
Woodburn	7. America after 1783.....	3	...	80
Blair	10. European Colonization	3	...	38
Cannon	11. English Const. History.....	2	38	16
Martin	12. German History	2	63	49
Martin	12a. French History	2	38	24
Ware	13. Empire and Papacy.....	2	5	3
Adams	15. Europe since 1789.....	2	27	14
Macy	17. America, 1847-1860.....	3	...	14
Macy and Woodburn ..	25. Party Organization	2	...	72
Cannon	29. Eng. Const. History (Adv.)..	2	8	6
Adams	31. Eng. and Am. Relations.....	2	15	6
Macy	33. U. S. Const. History.....	2	...	11
Woodburn	34. Reconstruction	2	...	20
Adams	35. Eng. Diplomacy	2	1	2
Blair	Thesis	4	1	...
Adams	Thesis	Vari- ous	3	3
	Total.....		630	754

EPHRAIM DOUGLASS ADAMS,
Professor of History.

ECONOMICS AND SOCIAL SCIENCE.

The work of the department for the year 1908-09 was carried on by Professors Allyn Abbott Young and Burt Estes Howard, Acting Professor Thomas Sewall Adams, Associate Professors Thorstein Veblen and Albert Censer Whitaker and Assistant Professor James Marvin Motley. Instruction was also given by Ira Brown Cross, assistant.

The courses given in the department were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Young, Cross..	1. Elements of Economics.....	3	243	178
Whitaker	4. Money and Banking.....	3	28	17
Young	5. Economic History of the U. S.	3	53	...
Young	5a. Railway Transportation	3	...	60
Whitaker	6. Corporations and Trusts.....	2	45	15
Adams	8. Public Finance	3	...	19
Adams	11. Labor Problems.....	3	...	39
Motley	12. Social Economics	3	46	42
Cross	13. Socialism	3	45	...
Whitaker	14. Value and Income.....	2	4	3
Veblen	16. History of Political Economics	3	11	10
Adams	17. Seminary in Labor Problems.	2	...	7
Motley	18. Seminary in Social Economics	2	5	4
Veblen	19. Economic Factors in Civiliza- tion	3	10	9
Young	20. Seminary in Statistics.....	2	15	11
Veblen	Special Theses .....	..	2	2
POLITICAL SCIENCE				
Howard	31. Comparative Federal Govt...	3	18	10
Howard	32. American Politics	3	137	54
Howard	33. Elements of Politics.....	2	43	15

The number of major students was 139, an increase of eight over the number of the preceding year. There was also a gratifying increase in the number of students taking advanced work, four graduate students being registered as candidates for the degree of Ph.D.

Assistant Professor Harry A. Millis was granted leave of absence for the year in order that he might act as superintendent of the western division of the U. S. Immigration Commission, which is undertaking a thorough historical and economic study of immigration problems. We were fortunate in being able to secure Professor Thomas S. Adams of the University of Wisconsin to fill for the second semester the vacancy thus created. Assistant Professor James M. Motley brought to a completion his detailed study of the methods and results of the housing relief instituted in San Francisco after the earthquake of 1906. The funds for this investigation were supplied by the Sage Foundation.

During the last three years the combined lecture and quiz method has been used with successful results in conducting the large course in Elementary Economics. The majority of the quiz sections have been conducted by Mr. Ira B. Cross, assistant in the department. At the

commencement of 1909, Mr. Cross was given the degree of Doctor of Philosophy, his thesis being the "History of the Labor Movement in California." The appointment of Mr. Cross as acting instructor for the year 1909-10 provides temporarily for the continuance of the quiz section method. It is highly desirable, however, that this useful part of our work should be placed on a more permanent basis.

There have been many requests from our students for the introduction of a course in Accounting. It has not been practicable to meet this demand, because university work in Accounting ought to consist of more than one elementary course. It is, however, desirable that provision be made for this work as soon as conditions render it practicable. Accounting has come, within the last few years, to have an important place in the modern university curriculum. This is not only because Accounting is of direct technical value to the large number of college students who expect to enter upon business careers, but also because Accounting has a direct, and very important relation to many of the more difficult problems of economic analysis, and because its proper development is found to furnish important tools for use in the social regulation of public service corporations, and in the administration of municipal and state finances.

ALLYN A. YOUNG,
Professor of Economics.

LAW.

The faculty of Law for the year 1908-09 consisted of Professors Charles Henry Huberich and Frederic Campbell Woodward, Associate Professors Arthur Martin Cathcart and Wesley Newcomb Hohfeld, and Assistant Professors Charles Andrews Huston and Joseph Walter Bingham. The course in California Practice was again given by John Slater Partridge, Esquire, of the San Francisco bar.

At the close of the year Associate Professors Cathcart and Hohfeld were promoted to full professorial rank and Assistant Professors Huston and Bingham were made associate professors.

During the summer of 1908 the building formerly occupied by the Mathematics Department was turned over to the Law School and was so altered and refitted as to provide one large and two small lecture rooms. This made it possible to convert the old lecture rooms into additional stack room for the law library and four office rooms for the use of the faculty. These alterations and additions were greatly needed and have substantially increased the efficiency of the school.

The registration of students in the Law School for the year was 37, of whom 21 were graduate students and 16 special students. The registration of students in the pre-legal course for the year was 211. Of these, 95 were registered in professional law courses, making a total of 132 students actually engaged in the study of law.

The courses of instruction given, and the enrollment in each, were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Huberich, Huston	1. Introduction to Law.....	2	...	47
Woodward ...	2. Contracts	3-4	64	53
Huberich	3. Criminal Law	4	17	...
Cathcart	4. Torts	5	13	...
Bingham	5. Property I	3-3	44	40
Hohfeld	6. Equity I	4	...	36
Huston	7. Agency	4	...	47
Huberich	8. Bills and Notes.....	4	...	15
Hohfeld	10. Trusts	4	15	...
Huston	11. Equity III	2	...	11
Woodward	13. Partnership	3	...	11
Cathcart	15a. Common Law Pleading.....	1½	25	...
Cathcart	15b. Equity Pleading	1½	25	...
Bingham	16. Property II	3	18	...
Cathcart	18. Quasi-Contracts	3	...	21
Woodward	19. Sales	3	24	...
Huston	21. Admiralty	2	15	...
Huberich	22. Conflict of Laws.....	4	11	...
Hohfeld	24. Evidence	3-3	11	8
Cathcart	27. Code Pleading	3	...	13
Partridge	28. California Practice	2-2	9	6
Huston	29. Private Corporations	4	12	...
Bingham	30. Property III	4	...	4
Woodward, Hohfeld, Bingham, Huston	34. Elements of Business Law...	2-2	65	26

In the course of the year, five special lectures on Bankruptcy Practice were given by the Honorable Milton J. Green of San Francisco, a referee in Bankruptcy; and four special lectures on the Practice of Mining Law were given by William E. Colby, Esquire, of the San Francisco bar. In addition to these seven lectures on various topics of a practical nature were given by prominent members of the bench and bar.

The total number of volumes in the law library on August 1, 1908, was 12,440. During the period from August 1, 1908, to July 31, 1909, 1124 volumes were added. Of these, 1061 were acquired by purchase, 17 by gift, 38 by binding and 8 by exchange. Sixty-two volumes were withdrawn, the net increase for the year being 1062. The total number of bound volumes in the law library on August 1, 1909, was 13,502. The most

immediate needs of the library are a collection of the consolidated statutes of the various states and the continuation to date of the official reports of all American courts of last resort. There is also urgent need of a librarian who can devote all of his time to the care and conservation of the library, the completion of an adequate card catalogue and the conduct of negotiations for the purchase of new books. If a librarian with a knowledge of stenography were employed, the money now expended for stenographic services might be saved.

Professor Huberich continued throughout the year his work as a contributing editor of *Die Handelsgesetze Des Erdballs*. During the year Professor Bingham completed a study of Legal Cause, which appeared, in two parts, in the Columbia Law Review. Professor Hohfeld is contributing to the same review a series of three articles on the Nature of Stockholders' Individual Liability for Corporation Debts, two of which have already appeared. Professors Cathcart, Huston and Bingham have been engaged during the summer in the preparation of contributions to a forthcoming encyclopedia of law.

The only important change in the curriculum is the addition of regular courses in Mining Law and Water Rights. These are subjects of particular interest and value to students who intend to practice law on this coast. They will be taught by Associate Professor Bingham.

FREDERIC C. WOODWARD,
Professor of Law.

GRAPHIC ART.

The personnel of the department faculty was as follows: Arthur Bridgman Clark, associate professor; Mr. Robert Barthlow Harshe and Mrs. Chloe Leslie Starks, instructors, and Miss Harriet Park, assistant.

Mrs. Starks has made some drawings of recent productions in fruit by Mr. Luther Burbank, a field in which she is an expert.

Mr. Harshe has found some time to devote to painting, producing several notable pictures, chiefly landscape. Some of these have been exhibited at the San Francisco Art Association and others in the Del Monte Gallery.

Beyond taking an active part in the meetings of the Art Teachers of California and in the Art and Manual Training Sections at the meeting of the National Educational Association, Mr. Clark has had no time to devote to other than routine university work.

The courses of instruction and attendance follow :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Starks	Elementary	2 to 4	21	18
Harshe	Elementary Head	3	4	8
Harshe	Advanced Head	3	12	7
Harshe	Color	4	6	13
Clark	Landscape	3	9	10
Clark	Lectures	2	46	22
Clark	Design	3	24	12
Clark	Scientific Perspective	2	...	22
Harshe, Clark.	Handicraft	2	4	7
Starks	Scientific Drawing	2	2	2
Harshe	Illustrating	3	1	4

THE STANFORD ART CLUB.

The Stanford Art Club is an organization in which the students and faculty of this department form the majority of memberships. During the year this club obtained and arranged the following exhibits, which were appreciatively attended :

- An Exhibition of Japanese Prints, loaned by Prof. J. M. Stillman.
- An Exhibition of Etchings, loaned by Messrs. Vickery, Atkins and Torrey.
- An Exhibition of Paintings by former Assistant Professor G. L. Noyes, loaned by various owners in the vicinity.
- An Exhibition of Japanese Paintings, by Mr. Sekko Shimada.
- An Exhibition of Photographs from Japan, by Herbert G. Ponting, F.R.G.S.

ARTHUR BRIDGMAN CLARK,
Associate Professor of Graphic Art.

MATHEMATICS.

The personnel of the department faculty was as follows: Robert Edgar Allardice, professor; Rufus Lot Green, professor; Hans Frederik Blichfeldt, associate professor.

In the second semester Dr. Manning of the Department of Applied Mathematics gave a course of lectures on the "Theory of Groups."

The opening of the library and reading room in connection with the department at the beginning of the second semester, proved of great advantage to both students and instructors.

The courses given were as follows :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Blichfeldt	1. Trigonometry	2	35	...
Blichfeldt	2. Solid Geometry	2	...	27
Green	3. Algebra	5	28	...
Green	4. Co-ordinate Geometry	5	...	29
Blichfeldt	7. General Course	3	35	27
Allardice	9. Calculus	3	14	13
Green	10. Adv. Co-ordinate Geometry..	2	8	8
Green	14. Theory of Equations.....	3	6	5
Blichfeldt	15. Differential Equations	3	5	3
Allardice	17. Theory of Curves.....	2	5	4
Allardice	19. Reading Course	3	2	2
Blichfeldt	24. Theory of Numbers.....	2	2	1
Manning	25. Theory of Groups.....	3	...	2

ROBERT EDGAR ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS.

The teaching force of the department for the year 1908-09 consisted of Professor Leander Miller Hoskins; Assistant Professors Halcott Cadwalader Moreno, Sidney Dean Townley and William Albert Manning, and Instructors Jesse Dwight Suter and Edward Jordan. The appointment of Mr. Jordan terminated at the end of the first semester. During the year the following student assistants were employed: George D. Barnett, L. B. Reynolds, A. F. Taggart, R. L. Daugherty, G. F. McEwen.

The work of the department consisted mainly of the courses required of all first and second year students in engineering, but Assistant Professor Townley's elective courses in general and practical astronomy were continued, and Assistant Professor Moreno conducted throughout the year an advanced course in Fourier's Series and Integrals.

The accompanying table shows in detail the courses given during the year :

INSTRUCTOR *	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Suter	A. Solid Geometry	2	20	...
Manning	B. Trigonometry	3	37	24
Manning, Suter, Jordan	1. First-year Mathematics	5	133	91
Moreno, Man- ning, Town- ley, Suter....	2. Calculus	3	111	107
Hoskins, More- no, Townley.	3. Theoretical Mechanics	5	111	101
Townley	5. General Astronomy	3	21	...
Townley	5a. Practical Astronomy	3	...	18
Moreno	6. Graduate Course	3	1	1
Hoskins	*3a. Hydraulics	3	...	90
Hoskins	*3b. Hydraulic Motors	3	53	...

*Scheduled under Engineering.

LEANDER MILLER HOSKINS,
Professor of Applied Mathematics.

PHYSICS.

The faculty for the Physics Department for the year 1908-09 consisted of Professor Fernando Sanford, Associate Professor Frederick John Rogers, Assistant Professors Elmer Reginald Drew and Joseph Grant Brown, and Laboratory Assistants Shirley Hyatt, George F. McEwen, Perley A. Ross and Albert E. Caswell. Roland Marx was also employed as mechanical assistant throughout the year.

The courses given in the department during the year, with the attendance in each class, are given below:

INSTRUCTOR	COURSE	Lecture Units per Week		Lab. Units per Week		Attendance	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Brown, Hyatt, McEwen	1. Dynamics	1	1	5	3	55	23
Drew, Hyatt...	2. Electricity .....	..	1	..	3	..	37
Brown	4. Sound	1	..	2	..	6	..
Sanford, Caswell	5. El. Optics .....	..	..	..	3	..	9
Drew, Hyatt...	6a. Eng. Phys.	3	..	3	..	40	..
Rogers, McEwen	6b. Eng. Phys. ....	..	3	..	2	..	31
Rogers, Ross..	7a. Biol. Phys.	1	..	2	..	25	..
Drew, Ross...	7a. Biol. Phys.	1	..	2	..	26	..
Sanford, Ross.	7b. Biol. Phys. ....	..	2	..	2	..	19
Brown	8. Mech. Meas. ....	..	..	..	2	..	3
Rogers, Mc- Ewen, Caswell	9. Elec. Meas.	1	1	3	3	16	■
Sanford	10. Adv. Optics .....	..	..	..	2	..	2
Sanford	11. Gen. Phys.	4	4	..	..	5	■
Sanford	13. Teachers' Phys.	1	1	..	..	9	9
Drew	14. Thermodynamics .....	..	3	..	..	..	3
Rogers	15. Vib. Motion	3	..	..	..	2	..
Rogers	16. Kinetic Theory .....	..	2	..	..	..	2
Sanford	19. Original Problems..	..	..	..	..	6	5

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY.

The teaching staff in the Department of Chemistry for the year 1908-09 consisted of Professors John Maxson Stillman, Lionel Remond Lenox, Edward Curtis Franklin, Stewart Woodford Young; Associate Professor Robert Eckles Swain; Instructors John Pearce Mitchell, William Henry Sloan, William George Bateman, Graduate Assistants George De Forest Barnett, Forrest Baker Beyer; Student Assistants Edward Waldo Rice, Alexander Macbeth Cuthbertson, Manuel Benjamin Bairos, George Shambaugh Bohart, Robert Wade Poindexter, Ernest Henry Staber.

For the ensuing year Professor Swain has been granted leave of absence for study in Europe. A portion of his advanced work will be omitted for the year and a portion will be conducted in the second semester by Mr. F. F. Fitzgerald (Stanford A.B., '05; A.M., '06), at present Assistant Professor of Chemistry in the Cooper Medical College.

The direction of the general inorganic chemistry courses, lectures, recitations and laboratory will be conducted by Assistant Professor Mitchell assisted by Mr. Barnett, instructor-elect.

The courses in chemistry during the year 1908-09, and the attendance upon them, were as follows:

LECTURE COURSES.

INSTRUCTOR	COURSE	Unit Hours		Attendance	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Swain	*1. General Inorganic....	2	2	116	113
Mitchell	*1. General Inorganic....	3	2	45	27
Stillman	*2. Principles	3	3	29	24
Franklin	*3. Organic	2	2	24	23
Stillman	*4. Industrial	2	2	15	13
Lenox	†6. Qualitative Analysis..	1	1	27	38
Franklin	*7. Advanced Organic....	2	2	6	4
Young	*8. Physical Chemistry...	3	3	18	13
Young	†10. Theories of Analyt. Chem. ....	..	1	...	20
Swain	†11. Physiological Chemistry.....	..	3	...	9
Stillman, Franklin	*12. Seminary	½	½	12	12
Stillman	Special Reading.....	2	2	3	2
				<hr/> 295	<hr/> 298

*Courses continuing through the year.

†Courses completed in each or in one semester.

LABORATORY COURSES.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Mitchell, with Assts. Cuth- bertson, Bo- hart, Bairos, Staber	a. General Inorganic.....	2	114	50
Lenox, Bateman	b. Qualitative Analysis	3	27	38
Franklin, Poin- dexter.	c. Organic Preparations	3	6	10
Sloan	d. Quantitative Analysis	3-4	28	16
Stillman, Lenox, Sloan	e. Mineral Analysis	3-4	8	7
Young, Barnett	f. Physical Chemistry	3-5	7	...
Swain	g. Physiological Chemistry	3	...	2
Lenox, Rice....	h. Assaying	3-4	14	16
Stillman	x. Advanced, special or research.	3-5	1	3
Lenox		3-5	3	2
Franklin		3-5	3	6
Young		3-5	1	2
Swain		3-5	4	...
			216	152

The above numbers do not include a number of students making up incomplete laboratory courses in which they had been previously registered.

Lectures were also given supplementary to laboratory courses, but without separate credits or registration, by Professor Lenox, one hour each week, each semester, on Assaying; and by Instructor Sloan, one hour each week, each semester, on Quantitative Analysis.

Work of research character carried on during the year may be briefly summarized.

Professor Franklin has continued his researches on the properties and relations of solutions in liquid ammonia and has also begun a study of certain properties of solutions in liquid sulphur dioxide.

Prof. Young has continued his studies of the phenomena of super-cooling.

Assistant Professor Mitchell completed the work he has pursued for the past two years, under direction of Professor Stillman, on a chemical examination of the surface waters of this peninsula and presented the results as his thesis for the degree of Doctor of Philosophy granted him at the close of the academic year. The conferring of the degree preceded his promotion to the title of assistant professor.

Instructor Sloan has continued the study of the electrical conductivity of certain salts in mixtures of ammonia and water and has prepared a combination of cuprous nitrate with ammonia. The work has been conducted with the co-operation of Professor Franklin.

Instructor Bateman was occupied with the study of the physiological effects of thallium upon the animal organism, under direction of Professor Swain.

Instructor-elect Barnett was occupied with an attempt to define conditions under which crystallization occurs in fused sodium-thiosulphate, under direction of Professor Young.

Mr. F. F. Fitzgerald, acting instructor-elect, studied the viscosities and conductivities of solutions in alkyl-amines, under direction of Professor Franklin.

Mr. F. B. Beyer was engaged in the study of conductivities of certain concentrated aqueous solutions, under direction of Professor Franklin.

No important changes have been made or are contemplated in the courses of instruction. The curriculum of the students in Medicine has necessitated the organization of a shorter and more especially adapted lecture course in Organic Chemistry and the addition of a laboratory course in toxicology and medical analysis. This work will fall mainly upon Professor Swain upon his return, and this in connection with the courses in physiological chemistry and food analysis already given by him makes more urgent the demand for an instructorship to assist in the first year class and laboratory work, assistance requested in previous reports and by the new courses and increased work caused by the medical chemistry demands, made more imperative. The instructorship now occupied during Professor Swain's absence by Mr. Barnett should therefore be continued after Professor Swain's return.

Since the last report the installation of fuel gas in place of gasoline and air mixture has very much increased the efficiency of the laboratory.

In the report for the past two years the importance of the installation of apparatus for liquefaction of air was mentioned and I wish again to emphasize the need of this addition to the equipment.

The prosecution of the studies of properties of solution and reactions at low temperatures in extension of the studies of Professor Franklin and his students is of itself adequate reason for the acquisition of this valuable agent for producing low temperatures. Moreover, the purposes of general instruction have made such apparatus necessary to any well-equipped chemical laboratory, and the apparatus is desired for many reasons by other members of the department than those especially engaged in researches requiring its aid.

Respectfully submitted,

JOHN MAXSON STILLMAN,
Professor of Chemistry.

GENERAL BOTANY.

The personnel of the Department of General Botany for the academic year 1908-09 was as follows: Professor Douglas Houghton Campbell, Associate Professor George James Peirce, Instructor (now Assistant Professor) Leonas Lancelot Burlingame.

The department offered the following courses attended as indicated below :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Campbell, Peirce, Burlingame..	1. Elementary	3	33	27
Campbell.....	2. Algae	5	5	...
Campbell.....	3. Archegoniatae	5	...	5
Campbell.....	4. Archegoniatae	3-5	2	2
Campbell.....	8. Evolution	1	...	20
Campbell.....	13. Investigation	7	...	1
Peirce	5 and 9. Physiology	3	10	7
Peirce	6. Elementary Bacteriology	3	...	3
Peirce	7. Physiology	1	36	...
Burlingame....	10. Technique	3-5	4	...
Burlingame....	11. Cytology	1-3	...	6
Burlingame....	12. Gymnosperms	5	...	1

(With the exception of courses 7 and 8, all courses in this department are laboratory courses with one lecture a week.)

The members of the department have carried on investigations as follow :

Professor Campbell has devoted a large part of the past year to the completion of the manuscript of a book, "Plant Life and Evolution." In addition, investigations have been continued upon the botanical material collected in Ceylon and Java three years ago. At present work is being done on a monograph of two groups of ferns, the Ophioglossaceae and Marattiaceae.

Associate Professor Peirce has continued the experiments with the new respiration calorimeter referred to in last year's report, making use of the rooms under the experiment house. These circular rooms, about sixteen feet in diameter and of nearly the same height, are located under the two halves of the experiment house, and are of remarkable uniformity in temperature. As far as recorded, the daily variation is about one-half a degree in twenty-four hours, and between mid-February and mid-August

the temperature had risen only four degrees Fahrenheit. Although these rooms are dark, they can be used for a great variety of experiments in which a constant temperature is more important than light. They can be kept free from mould by occasionally washing the walls and floor, which are of concrete, with an antiseptic solution. Owing to the fortunate selection of the site of the experiment house, these rooms, which were formerly tanks for storing fuel oil, have become a very valuable part of the equipment of this department and without added expense. Collaborating with Professor Swain of the Department of Chemistry, experiments on the effect of the ingredients of commercial and domestic smokes on vegetation have been begun.

Assistant Professor Burlingame is carrying on morphological studies of certain Gymnosperms and other plants either of the immediate vicinity of the university or from the seacoast. Some of the results of these researches will be published during the current year.

Mr. Charles S. Morris, a graduate student, studied certain problems in the development of *Ophioglossum* and *Botrychium*.

The expense of some of the experiments referred to above has been met by gift from friends of the university; and we are glad to acknowledge the generous gift from the artist of five water color paintings, on Japanese paper, of characteristic wild flowers of temperate America.

The experience of the last year has added confirmation to our conviction that most students in the West are unable to continue their studies beyond graduation on account of the cost. Unless enabled in some way to meet their living expenses, they go away to earn money, engaging in teaching or in other work for a longer or shorter time, and thus delaying if not preventing the completion of their training as botanists. The individual and the state are thus deprived of what might otherwise become expert knowledge. We should be glad to keep and to receive those who wish to complete their professional training, but until we can provide them, by fellowships or assistantships, with the means of earning some money during the college year, advanced students will neither stay with nor come to us. The expense to the university of establishing a few fellowships would not be great and the result would be stimulating to teachers and students alike.

DOUGLAS H. CAMPBELL,
Professor of General Botany.

SYSTEMATIC BOTANY AND FORESTRY

The instructing body for this department for 1908-09 was comprised of Professor William Russell Dudley, Assistant Professor Leroy Abrams and Laboratory Assistant James I. W. McMurphy. The herbarium assistants were Mr. Ernest A. McGregor and Miss Josephine D. Randall.

The following courses of instruction were offered in 1908-09:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Abrams	1. Spermaphyta	3	15	14
Dudley, McMurphy ..	2. Geog. Distribution and Forest Botany	3	...	14
Dudley, McMurphy ..	3. Fungi	4	8	...
Abrams	4. Elementary Taxonomy.....	2	...	3
Abrams	5. Compositae	2	1	...
Dudley	7. Coniferae	2	3	3
Dudley and Abrams	9. Special Taxonomy.....	2 or more	5	4
Dudley	10. Graduate .....	..	3	3

Mr. James I. W. McMurphy, who has been engaged for two years on the systematic and biological study of the *Madiaceae* or "tarweeds" of California and their distribution, was granted the degree of A.M. on his work, in May.

Mr. A. C. Herre completed his thesis on the *Lichens of the Santa Cruz Mountain Peninsula* during the year, passed his examinations in a very creditable manner and was granted thereon the degree of Doctor of Philosophy in May, 1909. His paper, the result of some six years of successful work on our lichen forms and their distribution, will be published in the Proceedings of the Academy of Sciences, Washington, D. C. Circumstances permitting, Dr. Herre will extend his studies to the lichens of the Pacific Coast and publish an account of them. His standing with the authorities in his chosen field is already assured.

Assistant Professor Abrams has been occupied in formulating his field work and notes, actively carried on for some years past, on the ligneous flora of Southern California.

The work on the Santa Cruz Mountain flora has been advanced considerably, the collected material of years having been arranged and the permanent mounting of it begun, and several papers for publication partly worked out. Twenty complete sets of the most important ligneous plants growing wild on this peninsula, numbering eighty species in a set, have been prepared for distribution to herbaria in this and other countries.

Two thousand five hundred and twenty-eight sheets of plants have been mounted for the general herbarium during the year.

The herbarium is increased by the occasional purchase of sets of plants made by professional collectors, by gifts from members of the staff or

from students—one of which during the year, by Messrs. Abrams and McGregor, of 830 specimens, deserves especial mention—and by gifts from the outside. We take pleasure in mentioning the latter as follows: Through Professor Kennedy, University of Nevada, 100 Nevada plants; through Professor Sitchell, University of California, 80 California plants; by Mrs. F. L. Andrews, Watsonville, California, a general collection of ferns made by her sister, Miss Annie Law; by Mrs. Major O. C. James, 100 flowering plants and ferns from Brazil and Uruguay; by F. Grinnell, Pasadena, 55 Southern California plants; by Dr. A. Davidson, Los Angeles, 150 Arizona and California plants; by the U. S. National Herbarium, 200 specimens of ligneous plants of China.

A number of new students have registered this year for the courses preparatory to forestry, showing that the interest in this profession continues.

WILLIAM R. DUDLEY,
Professor of Systematic Botany.

PHYSIOLOGY AND HISTOLOGY.

The teaching force of the department for the year consisted of Oliver Peebles Jenkins and Frank Mace McFarland, professors; and James Rollin Slonaker and Clara S. Stoltenberg, assistant professors; and Frank Walter Weymouth, laboratory assistant. Mr. John Floyd Pruett and Mr. Carl Schaupp were employed as mechanical assistants.

In the following table of statistics the numbers by which the courses are designated are those used in the Register for 1908-09, to which reference may be made for explanation of the character of the courses :

INSTRUCTOR	COURSE	Unit Hours	Hours per Week		Atten- dance	
			Lec- ture	Labor- atory	1st Sem.	2nd Sem.
Jenkins, Slonaker, Weymouth ..	1. Gen. Anatomy and Physiology	6	1	5	62	62
Slonaker	2. Physiology of Blood Circulation, Muscle..	3	1	5	17	..
Slonaker	3. Physiology of Diges- tion, Respiration, etc.	3	1	5	..	15
Stoltenberg	4. Structure of the Nerv- ous System.....	3	1	6	17	..
Stoltenberg	5. Histology of the Nerv- ous System.....	3	1	5	17	..
Jenkins	6. Physiology of Nerv- ous System and Sense Organs.....	3	1	5	..	15
Jenkins	8. Advanced Physiology..	3	..	9	2	2
McFarland	9. Histology	6	1	6	17	15
Stoltenberg	13. Mammalian Anatomy..	2-5	2	6-15	..	17
McFarland	14. Advanced Histology...	3-10	..	9-12	5	3
Department ...	15. Journal Club..... }	2	..	..	8	7
Department ...	16. Seminary					
McFarland	17. Research in Histology.	..	..	..	2	2

Professor McFarland's work on the Opisthobranchiate Mollusca of Brazil has been published during the year as No. 2 of the Leland Stanford, Jr., University Series. His Report on the Opisthobranchs of the Agassiz Expedition to the South Pacific is nearing completion, and his investigations on the Aeolidioidea of Monterey Bay are in progress.

Assistant Professor Slonaker has continued and nearly completed his papers on the normal activity of the white rat and on the influence of diet on growth, activity and longevity of the white rat.

Assistant Professor Stoltenberg has been engaged in the investigation of the nerve tracts in the brain and cord of rodents.

Mrs. Olive H. McFarland, graduate student, has completed her work on the anatomy and histology of Phylloplysia.

Mr. L. S. Kroeck, graduate student, has continued his investigations on spermatogenesis in the Spermophile.

OLIVER PEEBLES JENKINS,
Professor of Physiology.

HYGIENE.

The personnel of the Department of Hygiene for 1908-09 consisted of Associate Professor William Freeman Snow, Instructor Royce Reed Long, Acting Instructors Florence Bolton and Vera Townsend, and Assistants W. R. D. Randall, H. W. Maloney and E. W. Moulton. The department was also provided with four student assistants, namely: J. F. Chapman, H. A. Gilman, E. G. McCann and A. F. Meston. During the second semester, F. H. Hilton and J. H. Wiggins were appointed to fill the places of J. F. Chapman and H. A. Gilman, who graduated in January, 1909.

The tabulated statistics of the department work for the year are given in the accompanying table:

INSTRUCTOR	COURSE	Hours per Week	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Long and Townsend...	GENERAL EDUCATION COURSES.			Encina 229	231
				Roble 84	73
	1. Personal Hyg....	3 Gym.	1	313	304
	a. Gymnasium				
Snow	b. Laboratory	3 Lab.	1	7	7
	2. Pub. Health.....	2 Lect.	2	80	45
		3 Lab.	1	10	6
DEPARTMENT COURSES					
Snow	3. Industrial Hygiene	9 Libr. and Rec.	3	26	..
Long, Bolton..	4. Physical Training Methods	3 Lab.	1	Men 7	7
Snow	5. Epidemiology	9 Libr. and Rec.	3	Women 6	5
Snow	6a. Hygienic Lab. Technique	9 Lab.	3	..	34
	b. Sanitary Survey..	9 Lab.	3	Not given	Not given
Snow	Special Work....	Lab.	1-4	2	Not given 2

SUMMARY.

	Enrollment	
	1st sem.	2nd sem.
Lectures	80	45
Laboratory	32	27
Gymnasium	313	304
Library and Recitation.....	26	34
	<hr/>	<hr/>
Total.....	451	410

During the year the department made progress in interesting the high schools of the state in the laboratory teaching of Sanitation and Personal Hygiene. Five of the larger high schools of the state have made definite plans to introduce a trial laboratory course in the subject, and many of the county and city superintendents have discussed the feasibility of the instruction along these lines for the upper grades of the grammar schools.

The instructors of the department collectively developed during the winter a sanitation exhibit, which has been sent with marked success throughout the state by the State Board of Health. Professor Snow and Instructor Long spent the months of June and July as volunteer demonstrators in charge of this exhibit, and arrangements have been completed for continuing the work of the exhibit. Mr. H. O. Jenkins, a graduate of Stanford University and assistant in the biological department of the Massachusetts Institute of Technology, will have charge of it until October. The exhibit will be used in the regular instruction work of a majority of county teachers' institutes during the year.

In June Prefessor Snow was granted a leave of absence for 1909-10 to accept the appointment of secretary and executive officer of the California State Board of Health.

The President has completed plans for utilizing the equipment of the department for instruction in Bacteriology and in Hygiene in the newly organized department of medicine.

The physical training courses have been made more effective by minor changes, which have been worked out by Instructor Long.

Respectfully submitted,

WILLIAM FREEMAN SNOW,
Associate Professor of Hygiene.

ZOOLOGY.

The faculty of the department consisted of Professors Charles Henry Gilbert and Harold Heath, Associate Professor George Clinton Price and Assistant Professors John Otterbein Snyder, Edwin Chapin Starks and Walter Kenrick Fisher.

The following courses of instruction were given:

INSTRUCTOR	COURSE	Hours per Week		Attendance	
		Lect.	Lab.	1st Sem.	2nd Sem.
Price	1. Elementary Zoology...	1	6	50	38
Heath	2. Invertebrate Anatomy..	1	6	12	12
Heath	3. Invertebrate Embryology	1	5	..	10
Heath	4. Invertebrate (Adv.)...	..	6-9	8	6
Heath	5. Microscopical Anatomy ..	..	6	3	..
Fisher	6. Invertebrates (Class.)..	..	6	4	4
Fisher	7. Invertebrates (Adv. Class.) .....	..	6	2	1
Snyder	8. Vertebrates (Class.) ..	1	6	9	9
Snyder	9. Comp. Anat. Vertebrates .....	..	9	7	5
Price	10. Vertebrate Embryology ..	1	5	20	..
Price	11. Foetal Anatomy.....	1	5	..	4
Starks	12. Ichthyology .....	..	6-9	8	7
Gilbert	13. Ichthyology (Adv.)...	..	6-15	1	1
Gilbert	14. Journal Club.....	2	..	11	10
Snyder	15. Vertebrates (Adv. Class.) .....	..	..	1	1

Professor Gilbert continued investigations on the deep sea fishes of the Northwest Pacific; and on the distribution, habits and relationships of the salmon and trout of the Pacific province. During the summer he co-operated with the International Fisheries Commission of Puget Sound and in British Columbia.

Professor Heath completed a monographic report on the *Solenogastres* of the North Pacific, and has continued investigations in the same group as represented in the Western Atlantic. During the summer, he had charge of the work of the Marine Laboratory of this University at Pacific Grove, and offered courses of instruction.

Assistant Professor Snyder has continued his researches on the shore fishes of Japan and the fresh water fishes of California. During the summer, he had charge of an expedition sent out under the auspices of the United States Bureau of Fisheries to make a biological investigation of the Pajaro and Salinas river basins in California.

Assistant Professor Starks has continued studies in the osteology of the *Scombroïd* fishes, and has completed three papers, comprising about one-third of the work contemplated on that group. He has in course of preparation a hand-book on the fishes of the western coast of the United States. During the summer, he offered courses at the Marine Biological

Station on Puget Sound, and made further studies in the fishes of that region.

Assistant Professor Fisher continued his work on "A Monograph of the Starfishes of the West Coast of North America" and completed the first volume. He accepted from the United States Bureau of Fisheries, for investigation and report, a large collection of starfishes taken by the U. S. S. "Albatross" among the Philippine Islands.

Investigations by students in the department have resulted in the preparation of reports, as follows: A New Species of *Nectonemertes*, by Eleanor A. Foshay; The Anatomy of *Conchoderma*, by Horace Gunthorp; New Turbellarians from Monterey Bay, Cal., E. A. McGregor; The Innervation of the Mantle in the Chiton, *Placiphoretia velata*, Hazel Maddox; A New Pteropod, by Ethel M. Perkins; A Peculiar Pelagic Annelid, Genevieve Perkins; The Innervation of the Macruran Heart, by Josephine Randall; The Innervation of the Brachyuran Heart, by Ruberta Roberts; The Development of the Gonad of Molluscs, by Ola Rowell; Cephalopods of the Hawaiian Islands and California, by S. S. Berry; A New Harvest Mouse from the Salt Marshes of San Francisco Bay, by Joseph Dixon; A New Harvest Mouse from Petaluma, California, Joseph Dixon; The Liparids of Japan and Bering Sea, by C. V. Burke.

The equipment of the department has been increased by additional compound microscopes. In the zoological museum, the system has been inaugurated of attaching a numbered tin tag to each specimen. This will obviate the loss of data and consequent loss of invaluable collections consequent upon a catastrophe like the recent earthquake, and will add greatly to the usefulness of the collections.

The regular session of the Marine Biological Laboratory at Pacific Grove during the summer of 1909 was under the direction of Professor Heath. Courses were given by Professor Heath, assisted by Mr. F. W. Weymouth, and by Assistant Professor Burlingame. There were forty students regularly enrolled for class work and four occupying research tables.

C. H. GILBERT,
Professor of Zoology.

ENTOMOLOGY AND BIONOMICS.

The faculty of the department in 1908-09 was composed of David Starr Jordan, lecturer; Vernon Lyman Kellogg, professor; Mary Isabel McCracken, instructor; Rennie Wilbur Doane, instructor and curator; Robert E. Richardson, instructor in Bionomics; J. M. Miller, E. W. Rust and C. S. Morris, assistants. The number of major students was eight, of whom one was a graduate student.

The courses given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
McCracken	1. Elementary Ent.....	3	20	18
McCracken	1a. Morphol. and Physiol. of In- sects	3	2	7
McCracken	2. Class. and Devel. of Insects..	2 u. each sem.		
		4	4	4
Doane	3. Economic Ent. Forest Insects	2 or 3	4	
Doane	3a. Economic Ent. Orchard and Garden	2 or 3		1
Doane	4. Economic Entomology Coccid- ae	2 or 3	3	
McCracken	5. General Entomology	1		20
Doane	6. Insects and Disease.....	1 or 2		19
Doane and McCracken ..	7. Advanced Work	2 to 5	2	7
Jordan and Richardson...	8. Organic Evolution	1 or 2	121	92
McCracken	9. Variation and Heredity.....	2 to 5	2	2

Professor Kellogg was absent on leave in Europe and his courses were given by Instructors McCracken and Doane. Instructor Doane prepared an exhibit and charts of the insects which cause or transmit human disease for the State Board of Health Demonstration Car. Mr. Doane also made a trip with the first State Agricultural Demonstration Train, in October, 1908.

The researches carried on during the year were: By Professor Kellogg, on Heredity and Variation in the Silkworm *Bombyx mori* (9th year; results published up to the present); On determinate variation in *Diabrotica* (8th year). By Instructor McCracken, On the heredity of sporting melanism in silkworms (5th year); On the heredity of bivoltinism in silkworms (5th year; results in press); On silkworm reflexes and behavior. By Instructor Doane, On the North American *Tripulidae* (several papers published); On insects of the Society Islands (papers published). By Student E. J. Hadden, On Coccidae of the Society Islands (paper published). By Student W. M. Davidson, On Aphididae of the vicinity of Stanford University (paper published). By Student V. Vincent, On variation in insect wing venation.

A number of graduates of the department received appointments of professional entomologists. Calls were received for more men to fill such places than could be provided.

The principal additions to the department equipment during the past year were the Carl Baker collection of Diptera, consisting of about 7000 specimens; one filar Micrometer; one Zeiss Binocular Microscope; two compound microscopes and four dissecting microscopes. The principal books added were a complete set of the *Bolletino della Societa Entomologica Italiana*.

The principal need of the department—and it is a very pressing need—is that of a vivarium or insectary for the better carrying on of certain lines of work connected with the study of insect biology and of economic entomology. Such an insectary is becoming indispensable for the successful investigations of the life history and development of insects both in connection with economic work and for the experimental studies which are a special feature of the department work.

VERNON LYMAN KELLOGG,
Professor of Entomology.

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GEOLOGY AND MINING.

The department faculty consisted of Professors John Casper Branner, James Perrin Smith, John Flesher Newsom and James Farley McClelland; Assistant Professor Austin Flint Rogers; Instructors Luther William Bahney, George I. Finlay, and Assistants Donald Steel, H. E. Kramm, J. R. Pemberton, J. O. Lewis, F. W. Turner and A. B. Shutts.

The following table shows the courses given in the department during the year, and attendance upon them:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Branner	1. Elementary Geology	3	162	...
Branner	1a. Physiography	1	...	46
Branner, Newsom	2. Economic Geology	2	...	77
Finlay, Lewis..	3. Topographic Geology	4	...	14
Finlay, Lewis & Pemberton...	4. Field Geology	5	...	19
Rogers, Kramm	5. Mineralogy	3	25	27
Rogers	6. Petrography	2	23	19
Smith	7a. Paleontology	4	15	...
Smith	7b. Historical Geology	2	...	20
Smith	8. Paleontologic Research	2-5	5	6
Newsom, McClelland...	10a. Mining	4	22	...
Newsom, McClelland...	10b. Mining	3	...	21
McClelland, Steel.....	10c. Design of Mine Plant.....	3	...	18
Bahney, Shutts.	11a. Metallurgy Lectures	4	...	21
Bahney, Turner & Shutts.....	11b. Metallurgy Laboratory	2	...	21
Bahney, Turner	11c. Metallurgy (Advanced)	3-5	18	9
Rogers	12-1. Crystal Morphology	2	...	1
Rogers	12-2. Crystal Optics	2	3	...
Rogers	12-3. Chemical Mineralogy	3	...	1
Rogers	12-4. Chemical Petrography	2	...	1
Rogers	12-5. Paragenesis of Minerals....	2	4	2
Smith	13. Stratigraphy (Research)....	2	5	4

CHANGE OF OFFICES.

The lack of office room in the Metallurgy Building made it necessary for Mr. Bahney to have his office in the building in the inner quadrangle formerly occupied by Geology. This was so inconvenient, both for the instructor and for students, that a temporary partition was put up in the metallurgy laboratory and the offices of the metallurgists were moved to that building.

LIBRARIES.

The general library of the department, Professor Branner's private library, is in Room 333, and the books on metallurgy, formerly kept in the metallurgy office, have also been put in the general library, but are kept together where they can be most readily found by students.

The books on mineralogy belonging to the University are in Professor Rogers' office, Room 362; the periodicals and the bulk of the books and papers on mineralogy are in the Geology Library, in Room 333.

The library on mining is mostly in Room 338, but students also have the use of Professor Newsom's private library, which is in his office, in Room 339.

Valuable additions were made to all these libraries during the year.

ADDITIONS TO EQUIPMENT.

The following additions were made to the equipment of the department during the year:

1. A relief map of the Lake Superior region, obtained by exchange from the University of Wisconsin.

2. Six boxes of fossils, rocks and minerals were collected and sent in by Professor Finlay and his assistants from the vicinity of Ventura.

3. Mrs. M. M. Skinner of Stanford University gave to the department a valuable collection of miscellaneous minerals.

4. Other valuable minerals have been given to the department by friends, namely: A collection of Vivianite crystals and other minerals by Messrs. Cashbaugh and Schwennesen; examples of the ores of rare metals by Mr. Hess.

5. Valuable additions to the collection of minerals have been obtained by exchange with the University of Kansas and with Colorado College.

6. A large and valuable collection of land and fresh water shells from the Mississippi Valley, presented to the department by Mr. George J. Streator of Santa Cruz, has greatly increased the facilities for research work in paleontology.

7. W. R. Hamilton of San Francisco has given the department a valuable collection of Tertiary fossils from the petroleum regions of California.

8. R. V. Anderson has presented a set of fossils from Salinas Valley.

9. The Thomas Welton Stanford collection of Australian shells now in the general museum has been ordered transferred to the Department of Geology; this collection will still further increase our facilities for paleontologic study.

10. The paleontologic collections have been increased by the purchase of a set of fossils from Ward and of another set from Krantz.

11. Additions were made to the mineralogical collection by the purchase of about \$300 worth of minerals.

12. The purchase of apparatus and the fitting up of a chemical laboratory have provided facilities for advanced work by students of mineralogy and petrography.

13. In the mining division of the department the following additions were made during the year:

About 400 photographs were purchased, showing various mining operations in the following camps: Cripple Creek, Telluride, Colorado;

Butte, Montana; Clifton, Globe, Arizona; Alaska Treadwell; Ely and Goldfield, Nevada; Eureka, Utah, and the iron mining regions of Minnesota.

These photographs illustrate many details of mine plant and mining operations, and have been classified and mounted in albums, so that they can be used by students. Some of the larger photographs have been framed and hung in the drafting room and museum.

In addition to the above a complete set of photographs illustrating ditch, flume and pipe line construction in Alaska was presented to the department by B. R. Saunders.

One hundred and forty lantern slides were purchased, illustrating various phases of eastern coal and iron mining practice and of diamond drilling operations.

Sixty-three new lantern slides were also made up, illustrating methods of excavating earth and of shaft sinking operations.

Twenty-three photographs and lantern slides, illustrating aerial tramways, were presented to the department by A. Leschen & Sons.

The following additional equipment for mining was purchased during the year:

Three models of large steel and wooden head frames at Butte, Montana.

One 4-ton safety detaching hook.

One self-dumping tramway bucket complete.

One 2-inch Ingersoll-Sergeant rock drill, with tripod, drill bits, etc.

One Keystone drill bit.

One hydraulic giant and deflector.

One set blacksmith tools for sharpening machine drill bits.

One batea.

One 3-inch water Leyner rock drill with column, tanks and other equipment complete.

During the year a complete wooden model of an ore bin was built by Mr. T. N. Turner and presented to the department.

An acetylene mine lamp has also been received from the John Simons Company, New York.

14. In the metallurgy division of the department, the following gifts were received:

Specimens of iron bolts and washers from the chlorination plant at Jackson, Amador Co., presented by Mr. Gustav Schrader.

Sample of blast furnace slag and copper matte, presented by the Selby Smelting & Lead Company.

Set of blue prints of assay furnace, presented by the Selby Smelting & Lead Company.

15. The following additions to the metallurgy equipment were made by purchase:

Sturtevant jaw crusher.

Abbe double jar pebble mill.

New work tables with drawers and lockers.

Installation of crude oil to be used in furnaces as fuel, including two 1000-gallon tanks placed in ground at rear of building.

Ingersoll-Rand 7x9 air compressors, direct connected to Westinghouse 20-horsepower motor, with 6x2½-foot storage tank.

Dow piston pump with Wilgus oil regulator.

Two melting furnaces and three muffle furnaces mounted on steel tables designed by Mr. Bahney.

One large muffle furnace, Selby pattern.

Five steel tables for general fire room work.

One 2-horsepower motor to operate suction fan.

Gas burners designed by Mr. Bahney.

Oil burners designed by Professor G. H. Clevenger.

Pyrometer stand designed by Mr. Bahney, and reverberatory smelting furnace converter built by students.

Two Ainsworth button balances with multiple rider carrier attachment.

One agitator for twelve tests designed by Mr. Bahney.

One Jewell's automatic still to produce five gallons of water per hour.

One large eight-day clock.

Complete electrolytic outfit of the Occidental Development Company, including motors, generators, tanks, belts, pulleys, wire assay outfit, etc.

Vise, drills, pipe and tools for general work.

Motor driven apparatus to darken room when using stereopticon.

Nineteen bromide enlargements of metallurgical apparatus.

Ten lecture tables to accommodate larger classes.

The Delos Arnold collection of fossils has been unpacked and placed in the drawers in the geological museum on the ground floor of the Geology building.

Many other collections that have been boxed up and inaccessible ever since the University opened, have been unpacked and put in drawers where they can be got at conveniently. These collections will all be exhibited as soon as they can be put in order.

In the Mineralogy building a type set of minerals has been placed in show cases where it can be readily seen.

A beginning has been made toward a metallurgical collection, but the lack of space and furniture has hindered its growth.

SCIENTIFIC AND TECHNICAL WORK.

Mr. Branner has been preparing for publication the results of his travels and geologic studies in Brazil.

Mr. Smith spent two weeks in the summer of 1909 in geologic explorations of the Santa Lucia Mountains, assisted by Mr. J. R. Pemberton; he also gave a course of lectures before the Yosemite Valley Chautauqua on the geologic history of California.

Mr. Newsom visited and examined mining property in California and Arizona, and spent the early part of the summer of 1909 in the examination of mining regions in the interior of Alaska.

Mr. McClelland spent the months of April, May and June, while on leave of absence from this University, in giving a course of lectures on mining at Yale University. He also conducted a summer school in mine surveying for the Yale students in the iron mines at Mineville, New York. During the vacations he has examined and reported on mining properties in California and Nevada.

Mr. Rogers has been investigating minerals from various localities in California, especially among them the pegmatite minerals of San Diego County. He has also in preparation a paper on the crystallization and twinning of feldspars, and has in press a paper describing various pseudomorphs, alterations and petrifications.

In addition to short collecting trips, Mr. Rogers studied the occurrence of minerals and rocks in the foothill copper belt and the mother lode region of Calaveras and Tuolumne counties, and has obtained some interesting specimens for the collections beside material for class use.

Mr. Bahney spent part of the summer designing an adjustable pyrometer stand and assay furnace, gas burners and agitators for the metallurgy division of the department. The remainder of the vacation he spent in mine sampling in Nevada and California mines. He visited the principal mines of Goldfield and Tonopah, Nevada, studied the methods of the treatment of ores, and investigated mine samples and outlined methods for the extraction of gold and silver.

In addition to the publications by the members of the department, as given in the President's Report, Mr. Smith has completed for the United States Geological Survey a monograph on the middle Triassic faunas of America, and was further engaged in preparing a monograph on the upper Triassic faunas of America. These papers have not yet been published, however.

The following papers were written by students during the year:

R. V. Anderson: The Japanese volcano Aso and its large caldera: *Jour. of Geol.*, XVI, 499-526; *Scottish Geographical Magazine*, XXV, 355-364. Account of a trip in southernmost Japan: *Popular Science Monthly*, LXIV, 161-173. Effects of the earthquake on houses in San Mateo and Burlingame: Contribution to the *Report of the State Earthquake Commission*, Vol. I, Pt. 2, pp. 354-366, Carnegie Institution, Washington; 1908.

Mr. Anderson was engaged in a field study of the Tertiary stratigraphy of the Salinas Valley, and has prepared a paper on the subject for publication.

A. B. Reagan has prepared a paper on the Tertiary paleontology of the Olympic Peninsula of Washington.

Theodore Chapin has completed a paper on the stratigraphy of Arizona.

J. R. Pemberton was engaged in the study of Cretaceous fossils of the West Coast, and has completed a paper describing some new species.

W. H. Ochsner was engaged in a study of the Tertiary paleontology of the oil regions of California, and has continued in the preparation of his monograph on the fossil faunas of the Galapagos Islands.

J. O. Lewis has prepared a paper on the Tertiary sections of Middle California.

H. Hannibal has completed a paper on the fresh water mollusca of the Santa Clara Valley, and has published two papers describing living and fossil fresh water mollusca of the Pacific Coast.

ADDITIONAL WORK BY STUDENTS.

Twenty-seven students of this department spent the summer at mines and smelters in California, Arizona, Utah, Nevada, Idaho, Colorado, British Columbia and Alaska, doing mining work and getting data for theses.

J. C. BRANNER,
Professor of Geology.

CIVIL ENGINEERING.

The teaching force in the department for the year 1908-09 was as follows: Professors Charles David Marx, Charles Benjamin Wing, Leander Miller Hoskins and John Charles Lounsbury Fish; Instructors John Harrison Foss and Charles Moser, and a number of student assistants.

During the year the courses tabulated below were given in the department of Civil Engineering. The return of Professor Fish enabled us to restore the course in economics of railroad location which had formerly been given by him, but which had been dropped from the schedule during his absence.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Foss and Assistants.....	1a	1	128	2
Foss and Assistants.....	1b	1-4	156	106
Foss and Assistants.....	4a	5	55	17
Foss and Assistants.....	4c	2	6	...
Fish and Assistants.....	6a	5	...	52
Fish	6b	2	...	27
Wing and Moser.....	2a	5	82	...
Moser	8a	3	41	...
Wing and Moser.....	8c	5	...	45
Wing	9	5	15	11
Hoskins	3a	3	...	90
Hoskins	3b	3	53	...
Marx	12	5	18	16
Marx	13	5	...	15
Marx	Special	5	1	...

The Commission of Engineers was abolished by the action of the Board of Trustees in December, 1908, and since that time the two members of the faculty of Civil Engineering who have been connected with the work of construction of the University buildings have been relieved of this extra work.

The recommendations made in last year's report that provision be made for the proper expansion and housing of the mechanics of materials laboratory, and also that an experimental hydraulic laboratory for teaching purposes be built, have not been carried out, and are therefore renewed.

CHARLES D. MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING.

The teaching force in the department for the year 1908-09 was as follows: William Frederick Durand, Professor of Mechanical Engineering; Guido Hugo Marx, Associate Professor of Machine Design; William Rankine Eckart, Assistant Professor of Experimental Engineering; Everett Parker Lesley, Assistant Professor of Mechanical Engineering and Superintendent of Shops; Lawrence Edminster Cutter, Instructor in Drawing; Charles Norman Cross, Instructor in Experimental Engineering; Frank Oakes Ellenwood, Instructor in Experimental Engineering; Edward John Stanley, Instructor in Woodworking and Pattern Making; James Bennett Liggett, Instructor in Foundry; Theron James Palmateer, Instructor in Machine Shop; Robert Henry Harcourt, Instructor in Forge Shop.

During the first semester, 1119 student credit hours of instruction were given by nine instructors, or an average of 102 per instructor. The similar figures for the second semester are a total of 1309 student credit hours, and an average per instructor of 119.

The classes taught and numbers in attendance are shown by the following tabular presentation:

INSTRUCTOR	COURSE	Kind of Work	Hours Credit	Atten- dance	
				1st Sem.	2nd Sem.
Lesley	1a, b	Lect. and Shop.	1 to 3	50	67
Harcourt	3a, b	Lect. and Shop.	1 to 3	30	38
Liggett	5, 6a, b.....	Lect. and Shop.	1 to 3	85	37
Stanley					
Palmateer ...	7a, b, 8.....	Lect. and Shop.	1 to 3	32	45
Cutter	2. El. Mach. Drawing.	Drawing	2 or 3	46	..
Marx, G. H....	4. Mach. Design.....	Lect. and Draw.	4	12	..
Marx & Cutter.	5. Adv. Mach. Design.	Lect. and Draw.	3	10	..
Cutter	11. El. Mach. Drawing.	Drawing	2 or 3	..	59
Marx, G. H....	13a. El. Mach. Drawing.	Lecture	3	..	40
Marx, G. H....	13b. El. Mach. Design...	Drawing	2	..	40
Marx, G. H....	14. Mach. Design.....	Lect. and Draw.	4	..	9
Marx & Cutter.	15. Adv. Mach. Design.	Lect. and Draw.	3	..	11
Eckart	21. Calibration and Use of Engineering Ap- paratus	Lect. and Lab..	3	..	25
	22. Testing Engines and Boilers	Lect. and Lab..	3	37	..
	23. Testing of Pumps and Power Plant Auxiliaries	Lect. and Lab..	3	..	14
	24. Abridged Course in Experimental Engi- neering	Lect. and Lab..	3	19	25
	25. Advanced Course in Experimental Engi- neering	Laboratory	1 to 5	..	4
Durand	31. Heat Engines.....	Lect. and Office Work	3	71	..
Ellenwood ...					
Durand	33. Heat Engines.....	Lect. and Office Work	3	..	33
Ellenwood ...					
Durand	34. Thermodynamics ...	Lecture	1	..	12
Durand	35. Central Power Sta- tions	Lecture	2	38	..
Durand	36. Pumping Machinery.	Lecture	2	..	62
Durand	37. Seminary	Lecture	1	10	10

The work of the year was carried out in accordance with our normal program, except for a part of the first semester, during which the work

in pattern making was somewhat hampered by the delay in installation of equipment in the new shop. The new shops as a whole have proven very satisfactory indeed and represent apparently an entirely satisfactory solution of the question of shops, so far as buildings are concerned, for many years to come. Assistant Professor Lesley has, during the year, given his time to the co-ordination and development of the work in the various shops and at the same time has prepared a course of lectures to be given during the year 1909-10 on general shop administration and allied topics relating to the economics of engineering production. At the close of the first semester, the head of the department was relieved from further work in connection with the restoration of the University, and since that date the time and effort given to these services have been devoted more directly to educational matters. The work in the department of drawing, under the direction of Professor G. H. Marx, has been further improved in accordance with the experience of preceding years, and by means of the department appropriations a good start has been made toward providing suitable illustrative material in connection with these courses of instruction.

The general policy of adding some valuable definite item of equipment in the shops and laboratories has been followed out by the purchase of a new motor driven lathe for the machine shop and a long desired equipment for high temperature measurements in the laboratory.

The general needs of the department include further additions to the teaching force to cover important lines of work and further large additions to the equipment in the shops and laboratories in order to render such instruction most effective.

W. F. DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING.

The faculty of the department for the year consisted of: Harris Joseph Ryan, professor; Samuel Barclay Charters, Jr., assistant professor; William Arthur Hillebrand, instructor.

The courses of instruction given and corresponding numbers of students in attendance are stated in the following table:

INSTRUCTOR	COURSE	Hours per Week					Attendance	
		Lec- ture	Class	De- sign	Lec. Lab. De- mon.	Lab.	1st Sem.	2nd Sem.
Charters, Hillebrand...	1. El. of E. E.	..	1	..	2	1	57	..
Hillebrand	2a. Elec. Energy	1	..	..	..	..	15	..
Hillebrand	2a. Elec. Energy	..	4	..	..	..	..	16
Charters, Hillebrand...	2b. Elec. Energy	..	..	..	..	4	..	16
Ryan	3a. Elec. Eng...	3	..	..	..	..	21	..
Ryan	3a. Elec. Eng...	5	..	..	..	..	..	22
Ryan, Charters, Hillebrand...	3b. Elec. Eng...	..	..	..	..	4	21	..
Ryan	3c. Elec. Eng...	..	2	..	..	..	..	22
Charters	4. Intelligence Transmission	2	..	..	..	..	..	17
Charters	5. Elec. Rys...	2	..	..	..	..	..	24
Ryan	Graduate ...	..	..	..	..	..	1	3

In addition to the regular work of instruction the energies of the departmental faculty were devoted as heretofore largely to the production of much needed text and to extensions and improvements in laboratory facilities. Time was found in which to plan and partly complete certain investigations. Some of these were undertaken because of their value to teaching electrical engineers and advanced students, and others because of their interest and value in professional practice. The results obtained by Charters and Hillebrand on the "Reduction in Capacity of Polyphase Motors Due to Unbalancing in Voltage" were reported in a paper presented at the Thousand Islands, June, 1909, Meeting of the American Institute of Electrical Engineers, and published in the transactions; their studies in Transformer Regulation are being given to the October, 1909, Meeting of the San Francisco Section of the A. I. E. E.

The Western Electric Company made the department a gift of a complete line of telephone instruments and operating appliances to be employed for the purposes of instruction.

Mr. Leon Sloss, trustee of Leland Stanford Junior University, presented to the University for use in the department an outfit of instruments and auxiliary apparatus, complete, for operating a long distance land telegraph with the Wheatstone automatic system.

HARRIS J. RYAN,
Professor of Electrical Engineering.

DEPARTMENT OF MEDICINE.

So far as at present organized the faculty of the Department of Medicine is composed of Professors Adolph Barkan, Henry Gibbons, Jr., Joseph Oakland Hirschfelder, Stanley Stillman, Emmett Rixford, William Ophüls, Ray Lyman Wilbur, William Fitch Cheney, Oliver Peebles Jenkins, John Maxson Stillman, Arthur William Meyer, Frank Mace McFarland, and Associate Professors George Clinton Price, William Freeman Snow, Robert Eckles Swain.

As instruction in the Department of Medicine was not commenced during the past year this report will be confined to a record of the organization of the Department in so far as its academic functions are concerned.

So soon as the transfer of Cooper Medical College properties was decided upon and before details of transfer were completed, a committee of three was appointed by the President to consider the matters of entrance requirements, organization, and adaptation of the course to the related work in the existing departments of the University. This committee, consisting of Professors O. P. Jenkins, C. D. Marx and J. M. Stillman, chairman, after consultation with many persons within and without the University, reported the requirements for entrance as later adopted by the Academic Council, and a plan for organization of the faculty which was approved by the President and Advisory Board and adopted by the Trustees. These measures as adopted are included in the fifth annual report of the President of the University. This committee also advised the appointment of a larger committee, consisting of those members of the Stanford faculty and of the Cooper Medical College who, in the judgment of the President, would doubtless be engaged in the future work of the department, to act as a provisional Medical faculty without official authority, but as an advisory committee to the President, for the purpose of planning a tentative curriculum and of maturing plans for the organization of the Medical Course at the University and in San Francisco. To this end the President appointed Professors Barkan, Gibbons, Hirschfelder, S. Stillman, Ophüls, Rixford, Cheney, Wilbur, Jenkins, McFarland, Price, Snow, Swain and J. M. Stillman (chairman) as such committee. Those members of this committee who were not already members of the Uni-

versity faculty were later elected members of the Medical faculty, although in advance of their entering upon the active instruction work of the department.

This committee recommended that the first three semesters be given at the University buildings at Palo Alto, and the last five semesters at the Cooper Lane buildings, San Francisco. They also recommended a provisional schedule and curriculum, which was approved by the President and adopted, "subject to amendment," by the Board of Trustees. The text of this curriculum and of the recommendations accompanying was included in the fifth annual report of the President and in the preliminary announcement of the Department of Medicine, February, 1909. During the past year this committee, acting as a medical faculty, held regular sessions for considering the problems and immediate needs of the Department, and a special committee, consisting of Professors Barkan, Ophüls, Rixford, Snow and Wilbur (chairman), was elected to mature plans for the internal organization of the medical faculty. The reports of this committee, in so far as organization of the faculty are concerned, after amendment by the larger committee, were transmitted to the President and eventually adopted by the Board of Trustees. The organization, as adopted, is as follows:

PLAN FOR THE ORGANIZATION OF THE MEDICAL DEPARTMENT OF LELAND
STANFORD JUNIOR UNIVERSITY.

"The teaching body of the Medical Department of Leland Stanford Junior University shall consist:

- a. Of the members of the Medical Department Faculty, as specified in the Medical Faculty Organization, adopted October 30, 1908.
 1. Professors.
 2. Clinical Professors.
 3. Associate Professors.
 4. Associate Clinical Professors.
- b. Assistant Professors, Assistant Clinical Professors.
- c. Lecturers, Instructors, Assistants.

"Professors and Associate Professors" are to be those members of the Medical Faculty who are under full salary and who give the main part of their time to the work in their respective departments.

"Clinical Professors and Associate Clinical Professors" are to be of equal rank with Professors and Associate Professors, respectively, in the Medical Faculty, but to be men engaged in practice.

The following shall be the Officers and Standing Committees of the Medical Department Faculty:

1. The Executive Head of the department, appointed annually by the President, shall act as presiding officer.

2. A Secretary, who shall also act as Assistant Registrar for the work in San Francisco, under the Registrar of the University.

3. The following Committees:

- a. An Executive Committee of five members, appointed by the President of the University, to have general administrative functions for the Medical Faculty and to perform such other duties as may be assigned to it by the Medical Faculty.
- b. A Committee on Library and Publications, of three members, to be appointed by the President of the University.
- c. A Committee on Academic Matters, of three members, to be elected by the Medical Faculty from those members of the Medical Faculty who belong to the Academic Council.
- d. A Committee on Register, Announcements and Public Exercises, of three members, to be appointed by the President of the University.
- e. A Clinical Committee, of five members, to take the initiative in arranging clinical material for purposes of instruction and to control the Lane Hospital, to be appointed by the President of the University.
- f. A Committee on Supplementary Medical Instruction, of three members, to be elected by the Medical Faculty, which shall have charge of:
 1. The Lane Medical and Popular Lectures.
 2. Special courses given by distinguished guests on invitation.
 3. The establishment of elective courses (didactic and practical) in various branches of Medicine.

It shall be the special duty of this Committee to keep in touch with lecture courses in other Medical Institutions and also to encourage men of merit who may or may not be directly connected with the Medical Department to offer elective courses. The title of such instructors shall be that of Lecturer.

- g. A Students' Advisory Committee, of three members, appointed by the President.
- h. Such other committees as may be found necessary.

The term of service of all officers and of all committees shall be one year, or until their successors are chosen.

The sessions of the Medical Department Faculty shall be conducted according to Roberts' Rules of Order.

The Medical Faculty shall meet monthly in term-time and otherwise at the call of the presiding officer or of five members.

There shall be no official nomination for elected committees, and a majority vote by ballot of the members present shall be necessary for election.

It is recommended that a physician superintendent be appointed on full time as manager of Lane Hospital under the direction of the Clinical Committee, and as business agent under the direction of the Medical Department faculty.

For purposes of administration the Medical Department shall be divided into the following divisions:

1. Anatomy.
2. Physiology.
3. Chemistry.
4. Pharmacology.
5. Pathology, including Bacteriology, Legal Medicine.
6. Medicine—Subdivisions: Pediatrics, Neurology, Psychiatry and Psychotherapy, Electrotherapy, Dietetics, Tropical Medicine.
7. Surgery—Subdivisions: Ophthalmology, Otology, Laryngology, Genito-Urinary Surgery, Gynecology, Dermatology, X-Ray.
8. Obstetrics.
9. Hygiene and Public Health.

These divisions are to be established gradually with a Professor, Clinical Professor or an Associate Professor as *Acting Executive* of each division, and where in any division more than one such Professor, Clinical Professor or Associate Professor is appointed, an Acting Executive is to be designated by the President of the University.

The designated Executive of each division is to be administrative officer for all work of said division and to be subject to the adopted rules of Faculty Organization of Leland Stanford Junior University. (Chapter VII).

ORGANIZATION OF DIVISIONS.

Section 1. a. The Division Faculties shall consist of all members of the teaching staff of the several Divisions, but only Professors, Clinical Professors, Associate Professors and Associate Clinical Professors shall have the right to vote.

b. The Executive of each Division shall preside at the meetings of the teaching staff of the Division and shall act as the representative of the Division in its official relations with the President, the Medical Department Faculty and the various other Divisions. He shall sign all requisitions for supplies and equipment.

Sec. 2. Each Division Faculty shall have direction of the work of instruction in its field and of its internal administration, subject only to

such control as is vested in the Board of Trustees, the President of the University, the Academic Council or the Medical Faculty.

Sec. 3. a. All matters of internal administration in the Division Faculty shall be decided in conference or, if necessary, by a vote of its voting members.

b. In case the Executive Head of a Division Faculty fails to concur in the decision of the Division Faculty he shall report in writing the action of the Division Faculty :

1. In administrative matters to the Medical Department Faculty or, if necessary, to the Advisory Board of the University Council ; or
2. In academic matters to the Medical Department Faculty or, if necessary, to the Executive Committee of the Academic Council with a written statement of his reasons for non-concurrence, and the other members of the Division Faculty may, at will, make a written statement of their position.

c. Any member of a Division Faculty shall have a like right to appeal.

d. The Medical Department Faculty, or the Advisory Board, or the Executive Committee of the Council, as the case may be, shall in all such cases consider the course to be pursued, and shall submit its opinion in writing to the President of the University, whose decision shall be final.

e. The Medical Department shall determine, by affirmative vote of three-fourths of members present, when students shall be recommended for the degree of Doctor of Medicine, and the Executive Head of the Department of Medicine shall report the names of such students to the proper University Committee.

Sec. 4. Division Faculties may adopt by-laws for regulating the internal affairs of the Division and shall keep a record of their official acts.

Sec. 5. Meetings of a Division Faculty may be called by the Executive or by any two voting members."

A revision of the provisional curriculum as first adopted was also made and the revised curriculum was also adopted by the Board of Trustees. The curriculum as amended and accompanying suggestions and recommendations of the Medical faculty are as follows :

REGULAR COURSES.

“Recommendation in regard to the curriculum of the Medical Department of Leland Stanford Junior University.

Subject hours required by the Association of American Medical Colleges compared with present scheme for the Medical Department of Leland Stanford Junior University:

	Assn. Am. Med. Colleges	Stanford University
Histology	90	96
Embryology	90	96
Osteology	450	640
Anatomy		
Physiology	300	464
Chemistry and Tox.....	300	384
Materia Medica.....	60	96
Pharmacology	60	80
Therapeutics	90	... Given in Div. of Med.
Bacteriology	140	112 plus part given in Path.
Pathology	240	304
Clinical Microscopy.....	90	96
Physical Diagnosis.....	100	128
Surgery	540	656
Pract. of Medicine.....	540	576
Obstetrics	160	100 (160)
Gynecology	160	102
Pediatrics	100	102
Eye and Ear.....	60	150
Nose and Throat.....	60	
Mental and Ner. Dis....	120	120
Electro Therapy.....	60	16 plus part given in Div. Med
Genito-Urinary	60	86
Dermatology	40	86
Hygiene	30	64
Dietetics	30	32
Medical Jurisprudence...	30	32
	4000	4678

In order to meet the requirements of the Association of American Medical Colleges the schedule of units adopted by the larger Committee will have to be changed slightly to read as follows:

Schedule of unit hours for the instruction in Medicine in San Francisco :

FOURTH SEMESTER Credit Hours	FIFTH SEMESTER Credit Hours
3 Medical and Surgical Applied Anatomy	7 Medicine
3 Medicine—Physical Diagnosis, etc.	6 Surgery
4 Surgery—Introductory	2 Special Pathology
5 General Pathology	2 Clinical Lab.
5 Pathological Histology Lab.	1 Gynecology
2 Special Anatomy of Pregnancy	1 Genito-Urinary Dis.
2 Materia Medica	1 Pediatrics
2 Physical Therapeutics	1 Ophthalmology
—	2 Obstetrics
23 unit hours	—
	23 unit hours
SIXTH SEMESTER Credit Hours	SEVENTH SEMESTER Credit Hours
7 Medicine	2 Medicine (Clinic)
6 Surgery	3 Medicine (Section work)
1 Gynecology	1 Neurology
2 Special Pathology	2 Surgery (Clinic)
2 Obstetrics	3 Surgery (Section work)
1 Pediatrics	1 Obstetrics (practical)
1 Dermatology	2 Ophthalmology, etc.
1 Ophthalmology, etc.	1 Genito-Urinary Diseases
1 Neurology (Pathol.)	1 Gynecology
1 X-Ray Technique, etc.	1 Pediatrics
—	1 Psychiatry
23 unit hours	1 Dermatology
	1 History of Medicine
	1 Hygiene
	—
	21 unit hours
EIGHTH SEMESTER Credit Hours	
The same as seventh semester, plus	
1 unit in Legal Medicine	
—	
22 unit hours	

The following arrangement* of hours is tentatively recommended for the fourth semester :

*A revised schedule has more recently been adopted and will appear in the annual announcement.

FOURTH SEMESTER.

	Monday	Tuesday	Wednesday
8-9	Pathology	Pathology	Pathology
9-10	Introd. into Med.	Med. and Surg.	Introd. into Med.
10-11		Applied Anatomy Dissection	
11-12		Anatomy of Pregnancy	
1-2	Introd. in Surg.	Physical Thera.	Introd. Surg.
2-3	Path. Lab.	Materia Medica	Path. Lab.
3:30-4:30		Lab. and Lecture	
4:30-5:30			
	Thursday	Friday	Saturday
8-9	Pathology	Pathology	Applied Anatomy Dissection
9-10	Med. and Surg.	Introd. into Med.	Med. and Surg.
10-11	Applied Anatomy Dissections		
11-12	Anatomy of Pregnancy		
1-2	Physical Thera.	Introd. Surg.	
2-3	Materia Medica	Path. Lab.	
3:30-4:30	Lab. and Lecture		
4:30-5:30			

SPECIAL SUBJECTS.

Recommendations in regard to special subjects were:

ANATOMY, no special recommendations.

PHYSIOLOGY, no special recommendations.

CHEMISTRY, no special recommendations.

PHARMACOLOGY AND MATERIA MEDICA; that a separate division of Pharmacology and Materia Medica be developed as soon as feasible on account of the great importance of this subject for Medical Students; that until then, the teaching of Pharmacology be done at Stanford University in the Physiological Department by an instructor who is especially trained in Pharmacological Research. That for the beginning Materia Medica be taught in the Division of Medicine.

BACTERIOLOGY; that eventually a separate department of Parasitology and Bacteriology be developed but that until then, the teaching of Bacteriology be assigned to Pathology. The instructor in Bacteriology should be able to handle the subject from the Medical point of view as time does not permit of a separate course in General Bacteriology and an additional course in Medical Bacteriology at San Francisco.

APPLIED ANATOMY—It is recommended that the work in Applied Anatomy be handled conjointly by the divisions of Medicine and Surgery, that the teaching be done by physicians who are familiar with the requirements of the clinical branches. It will be necessary, however, to have in this department a special supervisor for the more technical side of the work. The courses should consist so far as feasible of practical work in the dissecting room. They should embrace:

1. Medical Applied Anatomy—The normal outlines of the body as a whole; the normal outlines, gross appearance and relative position of the normal viscera in situ and as projected on the surface.

2. Surgical Applied Anatomy; an anatomic study of typical operations and of artificial fractures and dislocations.

3. A special study of the topography of the viscera of the head and neck in relation to diseases of the eye, ear, nose and throat, and of the genito-urinary and reproductive organs in regard to genito-urinary diseases and gynecology.

PATHOLOGY—In the Department of Pathology three major subdivisions should be developed eventually. 1. General Pathology and Morbid Anatomy. 2. Pathological Chemistry. 3. Forensic Medicine.

The first sub-division is now equipped and represented. The second, Pathological Chemistry, is a very important subject which needs adequate representation at the earliest possible moment. The third, Forensic Medicine, could be developed by some understanding with the Coroner's office at San Francisco where there is much material which at present is not used for teaching or research.

The course in Pathology, as outlined at present, would consist of lectures, recitations and demonstrations in General Pathology in the fourth semester, a course in Pathologic Histology with appropriate gross demonstrations also in the fourth semester, a course in post-mortem examinations and Gross Morbid Anatomy in the fifth and sixth semesters.

MEDICINE—It is recommended that the general plan of teaching be that of the hospital, the dispensary and clinical laboratory and that the didactic system of instruction be minimized as much as feasible;

That in the fourth semester the teaching of Medicine be confined to practical work in Medical Anatomy, Physical Diagnosis, and History-taking and to some lectures and recitations on the General Principles of Medicine.

That the work in the last four semesters consist of:

1. Section teaching in the dispensaries and hospitals.
2. General Clinics covering the essentials of Medicine.
3. Actual work in the Clinical Laboratory on material derived from cases under observation by the student. It is understood that a certain coherence and sequence of the work must be observed so that the field of Medicine will be adequately covered at least every two years.

That the teaching in Practical Therapeutics be combined with the regular instruction in Medicine.

That Nervous Diseases be taught in a separate clinic and on ward cases, but in connection with the work in Medicine.

That Electro Therapeutics, Dietetics, be made special subjects of study for a part of one of the last two semesters.

That Pediatrics be taught as other specialties.

SURGERY—It is recommended that:

1. In the fourth semester the student receive a practical course in Applied Surgical Anatomy on the cadaver which would include an anatomical study of the typical operations, fractures, dislocations and deformities. Fractures, dislocations and deformities should also be taken up in a more correlated didactic course with text-book work and demonstrations.

2. In the fifth and sixth semesters a systematic course, consisting of lectures, recitations and demonstrations, be given in Regional Surgery. In these semesters the students should also attend section work in the Surgical Dispensary Clinic and clinical demonstrations in the Dispensary.

3. The seventh and eighth semesters be devoted to section work in the hospital wards and to attendance at clinical lectures and operative clinics at the hospital.

In order to carry out the work laid down in this program, it will be desirable to have a paid assistant in the Surgical Division, who should devote his time chiefly to instruction in Surgical Anatomy, Physiology and Pathology, and who should be in charge of the Laboratory for Surgical Pathology. This assistant should also have clinical opportunities.

OBSTETRICS—No special recommendations, except that the course should be chiefly clinical.

SPECIALTIES—The Committee recommends:

1. That the clinical work in the specialties be given in the seventh and eighth semesters.
2. That during this year most of the time of the students be spent in section work; that, however, each specialty give one clinic weekly in the seventh and eighth semester at which all students be present.
3. That instruction in the specialties so far as feasible be given in the afternoon in order to reserve the mornings for the work in Medicine and Surgery.
4. That each of the following specialties have a section of seventh and eighth semester students for two hours for five afternoons of the week for five weeks:

1. Pediatrics.
2. Gynecology.
3. Dermatology.
4. Genito-Urinary Diseases.

5. Ophthalmology.

6. Rhinology, Otology and Laryngology.

5. That preparatory courses for the specialties be given in the fifth and sixth semesters of 16 to 32 hours, according to necessity; these preparatory courses to consist of recitations, demonstrations and practical exercises. In the recitations particular emphasis should be laid upon the relation of the specialties to general Medicine and Surgery.

It is also recommended that elective courses be offered for those who wish to perfect themselves in certain branches.

HYGIENE AND PUBLIC HEALTH—It is recommended that the teaching in Hygiene be on a laboratory and a field work basis. Demonstrations of models, charts, and assigned reading should serve as a preparation for trips to industrial plants, the Federal Quarantine Station, garbage reduction works, dairies, isolation hospitals, etc.; these inspections to be written up and discussed in conferences.

Industrial Hygiene and Public Health Administration should be included in the required curriculum, Epidemiology should be offered as an elective course.

HISTORY OF MEDICINE AND JOURNAL CLUB—The History of Medicine should be arranged as a general assembly course for the third and fourth years, the lectures to be given by members of the teaching staff bi-weekly, and to alternate bi-weekly with a Journal Club of the third and fourth year students. These courses to be under the supervision of the Professor of Pathology."

With the co-operation of a special committee of the Medical faculty and of Prof. A. W. Meyer, Professor-elect of Anatomy, a laboratory for anatomy has been constructed and equipped upon the campus of the University in time for the beginning of work in the fall of 1909. The question of the official designation of the department was raised by the President, and in accordance with the almost unanimous sentiment of the Medical Faculty and of the Advisory Board of the Academic Council, it was resolved that the official designation be "The Department of Medicine of the Leland Stanford Junior University," thus expressing more completely its character as an integral part of the University and its co-ordination with other departments of the University. In the matter of fees it was recommended by the Medical Faculty, and approved by the Board of Trustees, that the tuition fee be fixed at \$150.00 per annum, as already existing in the Cooper Medical College, and in the University of California Medical Department.

It was later decided:

"That the fee of \$150.00 per annum may be paid in installments of \$75.00 at the beginning of each semester. Students who have paid the tuition of \$75.00 per semester shall not be subject to laboratory fees in the

various departments and courses of the University that are included in the required curriculum, except that during the first four semesters of the Medical course a general laboratory fee of \$5.00 each semester shall be paid to cover the cost of materials used in the laboratories not otherwise provided for, and except such deposits to cover breakage or loss of apparatus as are required by the various departments for the proper control and conservation of their material and equipment. Laboratory fees thus remitted to Medical students shall be debited to the account of the Medical Department and credited to the accounts of the other departments concerned. Extra dissecting material will be provided at cost."

The following additional regulations were adopted by the Medical faculty:

"Candidates for the degree of Doctor of Medicine must be enrolled as students in the Department of Medicine, and must pay the fees for each of the four years of the course.

Students will be admitted to advanced standing in the department, only when they have completed one year or more in a medical school of recognized standing, and have satisfied the other requirements for entrance to this department.

Students of Stanford University entering the Medical course at the beginning of their fourth or senior year at the University may retain their registration as major students of other departments as candidates for the Bachelor's degree, but they must also enroll as students of the Department of Medicine and pay the fees therein in order that their senior year may count as part of the four years' course in Medicine required by the law of the State and by the University."

With the academic year beginning in August, 1909, the actual instruction in the Medical course begins. For the ensuing year the instruction is confined to the branches taught on the campus of the University, and only those instructors giving instruction there will be upon the active list of the University for that year. Nevertheless much careful consideration must be given to prepare for the work for the following year, and the wisdom and experience of all the professors-elect will be called upon in the task of foreseeing and providing for the needs of that work. With the beginning of instruction a more formal organization of the department faculty has become necessary, and to that end the President appointed, in May, 1909, the undersigned as Acting Executive of the Department Faculty for the ensuing year. Vacancies on the Special or Executive Committee of the Medical Faculty, caused by the departure for extended absence of Professors Barkan and Wilbur, were filled by the election of Professors Gibbons and J. M. Stillman. The Medical Faculty also appointed a committee of three—Professors Jenkins, Meyer and J. M. Stillman (chairman)—for the consideration of questions which may arise as to the fulfillment of admission requirements of candidates. The official status

of this Committee is an Advisory Committee to the Registrar and to the Committee of the Academic Council on Admission and Advance Standing.

During the ensuing year provisions will be needed to prepare for the instruction in Pharmacology and Bacteriology, which begins in the fall of 1910. Certain provisions for the following year in other divisions will also demand consideration.

In conclusion, I wish to bear testimony to the broad-minded and disinterested spirit with which all the members of the appointed faculty have approached the difficult problems which have come before us, and to the unanimity with which all have devoted their labor and time, often at considerable sacrifice, to the many time-consuming sessions necessary for the careful consideration of the questions involved. With the spirit shown hitherto, we may look forward with confidence to a successful solution of the future problems of the department.

In laying the foundations for a Medical Department of high grade, with a four years' Medical course, based upon three years of college training, we must contemplate the probability of a relatively small attendance and a relatively large expense until we shall have demonstrated that the education imparted justifies the time and labor required for its degrees.

Respectfully submitted,

JOHN MAXSON STILLMAN,
Acting Head.

APPENDIX II

REPORTS OF COMMITTEES

STUDENT AFFAIRS.

The Committee on Student Affairs consisted of Registrar Orrin Leslie Elliott, Professors George Clinton Price, Albert Conser Whitaker, Halcott Cadwalader Moreno and Arthur Bridgman Clark, three of the committee having served during the latter part of the previous year.

The attitude prevailing among the majority of the students at the opening of the year is shown in an editorial from the *Sequoia* of September, 1908, which is in part as follows:

"The Student Affairs Committee has issued a circular letter,* the meaning of which is plain and unmistakable: There shall be no liquor in any student lodging.

"In adopting this policy the committee did not act on its own initiative; it acted in furtherance of a resolution of the Board of Trustees, the tenor of which was as plain and unmistakable as was the committee's letter. Such a direct command, entirely lacking in ambiguities, emanating from our sovereign body, is a command to be obeyed.

"And we believe that the committee's admirably straightforward letter would have been obeyed, even if registration had not been made a pledge of acceptance. This provision, however, makes obedience a question of honor; not to comply is to break a promise knowingly made. Surely Stanford neither needs nor wants a man who will do that.

"Furthermore, if there be any who would have returned to the University but for the strict prohibition, we should grieve but little, for how poor a man is he who will abandon his Alma Mater because he may not drink.

"Our only regret is that the plain and pointed phrases of the August letter were not used in March."

With the exception of a little carelessness on the part of student correspondents for city papers, no trouble arose until the issuance of the "Plug Ugly" poster. This announced the play which the Junior class gives to celebrate the adoption of the Junior hat. The poster contained

*The text of this letter appears in the President's Report for 1907-08, page 82.

objectionable features and the play following was not suited to a Stanford audience. The seven men of the Junior class who were responsible for poster and play had been warned that nothing of a vulgar nature would be tolerated, and as they had violated this direction they were suspended for the remainder of the semester.

The annual Christmas holiday trip of the Glee and Mandolin Clubs has, in past years, been frequently followed by unpleasant rumors, detrimental to the University. These rumors, having been, in part at least, well founded, permission to make the customary trip was withheld.

Dishonesty in class work and in examinations has always been considered a serious offense, yet a number of cases arise each year. Professor Moreno collected data on the subject from both students and faculty, showing the methods and extent of the practice, and these facts, with certain deductions from them, were presented unofficially to the members of the faculty with the hope of lessening the evil in the future.

The saloons in Menlo Park have continued to menace the good order of the University. At the session of 1909, the attention of the State Legislature was called to this condition. As a result, a bill introduced by Senator Marshall Black was enacted in the form of a general law prohibiting the sale of liquor within a mile and a half of the campus of universities which conform to certain described conditions, applying to the Leland Stanford Junior University. Measures for testing and enforcing this law are now in process of trial by citizens of San Mateo county.

In the second semester the men of Encina Hall entertained the faculty at an "at home," and a feeling of the warmest cordiality was the result. The faculty, a few weeks later, entertained the men of Encina at the faculty grounds and Club House and cemented the feeling of cordiality even more strongly.

The Sequoia, in the last issue of the year, said in an editorial:

"The peaceful passing of the present semester has gone a long way toward restoring the faculty and student body to a basis of harmony and good will; . . . today . . . we are nearer a state of common understanding than has been known here at Stanford since the early days of our history, . . . We think, then, that we are justified in saying that the present compliance with regulations is free and voluntary."

Discipline has been imposed during the year as follows:

No. of Students	OFFENSE	DISCIPLINE
7	Plug Ugly affair.....	Suspension Nov. 7 to Dec. 11
1	Noticeably under the influence of liquor	Suspension Mar. 22 to May 20
6	Fraud in class work or in examination	Suspension for one semester

The policy of restricting the giving of balls or dances away from the campus has been maintained; likewise the policy of prohibiting theatrical performances by students away from the campus.

During the second semester an organization looking forward to "Student Control" was effected and provision made for a Students' Conference, composed of twenty members, elected by various groups of upper classmen. It is the desire of this conference, to the largest extent possible, to obviate occasions of offense, in matters of conduct, by encouraging thoughtfulness and care on the part of the students themselves. The Committee on Student Affairs has expressed its desire to co-operate with this movement to the largest extent possible.

Standards of conduct must be fixed, in the last analysis, by those who are responsible for the welfare of the University and of the students who are entrusted to its care. This responsibility the faculty cannot surrender, however agreeable such action might be. But it can heartily approve and further every effort on the part of the students themselves, through united action, to reach and maintain these standards, and so reduce to a minimum the necessity on the part of the faculty of administering disagreeable and unpleasant discipline.

A. B. CLARK,
Chairman.

ATHLETICS.

In a preceding report it was stated that under the system of specialization in sports which had grown up in the schools in imitation of the colleges, many students entered the University who were unskilled in the games represented here, and that to carry out the Committee's ideal of general participation in athletics, it was necessary to formally instruct these students in athletic exercises. To this end, Mr. E. W. Moulton, the "trainer" employed by the men, was retained by the Department of Hygiene to give his mornings to drilling students sent out from the gymnasium in prescribed field and track exercises. It was, of course, but a small beginning, but so far as it went it seemed to be successful in bringing the specialized forms of gymnastic exercises into close relation with general athletics.

In furtherance of the plan of bringing about a more general participation in outdoor sports the Committee, at the instance of Professor Snow, passed a resolution to be recommended to the Council, which called for a minimum of two hours a week exercise in outdoor sports for all first year students, as a means toward better health standards and a more general participation of students in physical activities. As Professor Snow was called away from the University temporarily, the Committee thought best to hold the resolution over till his return.

ROWING.

After a fair trial, it would seem that intercollegiate rowing, as at present pursued, is impracticable at this University. The distance of the boat house on the Redwood City slough from the campus makes too great demands on the time and energy of the oarsmen for rowing to be regarded as either sport or recreation, and it seems very clear that if it is to be continued as an intercollegiate basis it must be under very considerable restrictions as to time and extent of practice.

TRACK AND FIELD.

At your request, I made an inquiry into the effects of the two-mile run on the students taking part in this event. The collapse from time to time of the two-mile runners in intercollegiate contests has given grounds for the belief that the event is unnecessarily trying and exhausting.

I do not find, however, that the few cases of collapse of two-mile runners at this University indicate that the event is to be regarded as dangerous. The collapse is more obvious but less lasting than that which frequently takes place in football or rowing, or indeed any form of sport where men exert themselves to the utmost for the longer intervals of time.

In almost every case the men entering the event have been built up and strengthened by the training to a very marked degree. The last case of collapse on our track was directly traceable to a disregard of common-sense practices, both as regards sleeping and eating. The recovery, however, followed in a few minutes, and as a whole the student had been greatly benefited by his several years of practice for the event.

From cursory observation, I should say that the quarter and half mile make the strongest demands on the system, as in these events the runners exert their maximum efforts for periods of about a minute to three minutes. Taken as a whole, however, track and field work has had a very broad and beneficial influence in building up and strengthening a large number of students.

BASEBALL.

During the spring there was more playing of "volunteer" baseball than at any other season in the history of the University. The field provided by the Trustees, together with the Faculty Field, was in use for departmental, fraternity or club games almost every pleasant afternoon. This, of course, is a condition the Committee wishes to see extended and made permanent.

The intercollegiate game ran its usual season of strenuous practice and limited participation. During the season the question of amateur standing arose in a somewhat acute form, so that at the end of the semester the Committee ruled that any student playing during the summer in a game

where gate money was taken would be ineligible for a varsity team. As against this it has been contended that there should be no more objection to a man's paying his college expenses by playing ball than by field work in engineering.

As thus abstractly stated, the Committee sees no more objection in one case than the other, but in practice it finds a very considerable difference, as a position on a "bush league" team in a minor town is apt to bring the player into frequent and often intimate contact with the gambling and other objectionable elements of the population. Looking at the matter from the standpoint of pure spirit, if an exception to the amateur standing rule were made in the case of the "bush league" ball player, it would only become a question of time when all branches of college sport would become commercialized and demoralized. Either baseball must live up to the standard of the other sports, or it must drop out of the intercollegiate list and its place be taken by a game that is less commercialized.

FOOTBALL.

The three years of experience with Rugby football have confirmed the judgment of those who believed that it was in all respects a superior game to the one it superseded. It calls for more skill in handling and kicking the ball, and it demands better physical condition to stand the constant fast running. The practice is enjoyed by the players, and it is not as exhausting or as crushing as that of the so-called College game. The game is a rough one and results in not a few accidents, especially when played on our hard California fields by players schooled in the hard tackling of the old game. But even under these conditions, there is no formation like the old mass or momentum plays and there is but little opportunity for the exercise of the most objectionable feature of the old game, viz., the deliberate battering down and wearing out of a player by driving through him a succession of momentum plays.

The main trouble with Rugby football is one that it shares with all other sports that are on an intercollegiate basis, and that is that the preparation for the "big game" is too much a matter of work and too little of fun.

The writer was among those who some years ago favored the introduction of freshmen football, on the ground that it would result in a more extensive participation in sport. This was probably the case under the conditions of the old game, but now that Rugby has come into the field, it appears that the drill and training of a freshman intercollegiate team interferes to a considerable extent with departmental, class and club games. There is no doubt moreover that the event has grown in importance so that it arouses almost as much interest as the varsity game of ten years ago, and that it offers a very serious distraction from work at a time when it is most important that the freshmen should be familiarizing themselves

with their academic duties. For these reasons it would seem best to abolish the freshman intercollegiate game.

In general the criticism made in past years on the conduct of our sports still remains valid; they are conducted too much as a business, both from the financial point of view and from that of winning intercollegiate contests, a state of affairs for which the old game of football is largely responsible. With the lapse of the present intercollegiate agreement with the University of California in 1909 an excellent opportunity is offered for placing our athletics on a more sportsmanlike basis.

WOMEN'S ATHLETICS.

Since the young women took over the tract near their gymnasium granted them by the Trustees, they have constructed, at their own expense, five tennis courts, a hockey and basketball field and two handball courts. In addition, they have set out a long stretch of hedge and planted many trees and rose bushes. The result is that more girls are taking part in outdoor sports than was the case a few years ago, but the number is still small in comparison with the total number. The reason for this is obvious: relatively few girls enter the University who are skilled enough in any outdoor sports to get recreation from them, and to bring about a wider participation, formal instruction by the University is necessary. The most feasible way of doing this would seem to be by adding to the gymnasium force another instructor, whose main duty should be to look after out-of-door exercises—the plan already proposed by the Department of Hygiene.

FRANK ANGELL.

COMMITTEE ON PUBLIC HEALTH.

The members of the Committee on Public Health for the year 1908-09 were Professors William Freeman Snow, Charles Henry Gilbert, Clara S. Stoltenberg, Robert Eckles Swain and George James Peirce. Of these Messrs. Snow, Gilbert and Swain were members of the Board of Directors of the Students' Guild. Dr. Edith E. Johnson served as medical assistant and Miss Josephine Randall as the secretary of the Committee.

The records of the Committee are on file in the office of the Health Officer of the University. These records furnish the basis for the following reflections and recommendations:

The lack of proper lodgings on the Campus or elsewhere near the University and of restaurants and other places where wholesome food may be obtained under conditions of reasonable refinement, lessen the benefit which this University enjoys from its remarkable climatic advantages. Excepting in the Halls and in the fraternity and sorority houses, lodgings on the Campus are dear, over-crowded, ill supplied with toilet and heating arrangements; but owing to the inaccessibility

of the University and the consequent demand for lodging on the Campus, this Committee has not seen its way clear to further restriction of the numbers allowed to occupy rented rooms. The completion of the trolley line to Palo Alto reduces the isolation of the Campus. For this reason an improvement in the toilet accommodations and heating facilities will be required. This is, however, only a palliative measure, and this Committee would suggest to the University authorities a consideration of the feasibility of providing lodgings for men and for women, which shall be equipped with appliances for securing adequate ventilation, warmth, and toilet accommodation. The foundation for one such dormitory, conveniently situated, appears to be provided in the remains of the wrecked gymnasium building.

The matter of food for students has caused this Committee serious concern. Most small communities are ill-supplied with boarding places providing wholesome food. Young people, many of them not yet fully grown, leading lives in which bodily exertion is limited to a small part of each day, require nourishing food in plenty and in readily digestible forms. It must be as low in price as the market allows, and it should be served under refined and agreeable conditions. These obviously reasonable desiderata cannot now be required. Therefore we would suggest that the establishment of boarding places of good quality on the Campus be encouraged.

The Students' Guild has continued to provide for the hospital needs of the students. The enforcement of the requirement of effective vaccination has protected the University from smallpox. It is, however, impossible to protect the community against other forms of contagion, and the care of cases of contagious disease is difficult. It is contrary to the law of the State that contagious cases be taken into incorporated towns from the surrounding country. It is, therefore, no longer possible to send them to the County Hospital in San Jose. There was only one case of smallpox among the students, that of a girl in Roble Hall. This student walked to Palo Alto to consult a physician and her case was recognized as one of smallpox. As the case was already within the town limits and a menace, it was taken care of by the Students' Guild in co-operation with the health authorities of the town. This case, and the others of this and other contagious diseases, demonstrate the great need of a hospital on the Campus for such cases.

The obligations of a local board of health often exceed its powers. It is expected to protect the community from disease and to improve the conditions of life. It can do these things only when supported by the authorities and by the public. This Committee, therefore, as a local board of health, invites the attention of the authorities and of the community to the means of protection and improvement.

GEORGE J. PEIRCE,
Acting Chairman.

DELINQUENT SCHOLARSHIP.

The membership of the committee for the year consisted of Dr. Orrin Leslie Elliott, and Professors Augustus Taber Murray, Leander Miller Hoskins, Frederic Campbell Woodward and Charles Henry Gilbert, Professor Millis being absent on leave.

An important modification of the regulations hitherto in force was unanimously recommended by this committee to the University Council, and upon its adoption by the latter was put in force at the close of the spring semester. During the entire history of the University previous to this, students who had failed in a specified proportion of their work were compelled to withdraw for a period of one semester before again registering; and the second trial then permitted was considered final. The modification now in force consists in doing away with the period of compulsory withdrawal after the first failure. Students who now fail for the first time in more than one-third the work for which they are registered (or one-half the work in the case of freshmen in their first semester) are adjudged to have made a first failure, but ordinarily are permitted to continue their course without interruption. They are thus enabled, without loss of time, either to retrieve their record or to demonstrate their inability to carry university courses. The second trial, as before, is considered final. It is generally recognized that the failures of students are due to certain causes operating singly or in combination. Among these the more prominent seem to be mental incapacity, inadequate preparation, laziness, dissipation, and preoccupation with some form of activity other than study, such as athletics, dramatics, or other of the multifarious interests of student organizations. Some are mentally incapable of achieving success, others could but will not. With the latter class, the period of compulsory withdrawal hitherto in force has often been salutary, acting with many as a deterrent, with others on their return after suspension as a stimulus which has led to success. To an unknown degree, this effect will now be lost. But it is the expectation of the committee that such loss will be more than counterbalanced by the advantage gained in doing away with a compulsory period of profitless inactivity and by conserving the interests of the worthy industrious students, handicapped it may be by lack of preparation or in other ways, but unable to profit by purely punitive action.

The committee held seven meetings during the year to consider reports of delinquent scholarship submitted by members of the faculty. On the basis of these reports, 178 students were determined as having failed, 135 for the first time, 43 for the second time and thus finally. During the same period, 83 students were in attendance who had returned on probation after a first failure. It would thus appear that about half the latter promptly failed on being granted a second trial. Of the total failures for

the year (178), 165 were men and 13 women; or, stated in percentage, 14 per cent of the men and about 2½ per cent of the women registered in the University.

In the following table, students are grouped by residence, the percentage of failures in scholarship being separately given for each group:

Residence.	Men Total Number.	Percent of Failures.
Palo Alto and Mayfield.....	328	15
Encina Hall	324	7.4
Private residence on Campus.....	85	20
"Commuters" (From San Jose, etc.)	75	13
Fraternities	321	20
	Women	
Palo Alto and Mayfield.....	115	3.5
"Commuters" (From San Jose, etc.)	40	0
Madrono Hall and private houses on campus	127	1.5
Sororities	142	2.0
Roble Hall	110	3.6

C. H. GILBERT,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR.

The number of students in attendance in 1908-09 was 1667. Of these 1133 had previously been in attendance, 534 were new students. As compared with 1907-08 there was a decrease in old students of 31, in new students of 40, making a total decrease of 71.

STATISTICS OF REGISTRATION, 1904-1909.

	1904-05	1905-06	1906-09	1907-08	1908-09
Old students	982	1069	1155	1164	1133
New students	586	717	513	574	534
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	1568	1786	1668	1738	1667
Percentage of old students					
returning	66.1	68.2	64.6	69.7	65.1
From California	1188	1341	1329	1438	1319
From other states.....	380	445	339	300	348
Percentage outside Cali-					
fornia	24.6	24.2	20.2	17.2	20.8

AVERAGE AGE AT MATRICULATION.

Graduates*	29.2	30.	29.7	28.7	28.3
Advanced standing	22.4	22.7	21.5	22.8	22.3
Freshmen	19.8	20.	19.9	20.4	19.9
Specials	25.1	24.1	25.	25.1	24.

*From other colleges.

AGE OF FRESHMEN AT MATRICULATION.

Under 17	9	11	5	4	4
17-18	40	45	34	41	33
18-19	81	112	89	104	89
19-20	96	152	118	123	111
Over 20	161	161	161	135	143
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	387	481	407	407	380

STATISTICS OF ENTERING CLASS, 1908-09.

	Number Entering	Number Returning 1908-09	Failed in Scholarship
From Colleges—			
Graduates	29	6(20%)	1(3%)
With advanced standing.....	90	57(63%)	11(12%)
Without advanced standing.....	18	7(39%)	8(44%)
	<hr/>	<hr/>	<hr/>
	137	70(51%)	20(14%)
From Normal Schools.....	11	7(63%)	1(9%)
From Preparatory Schools—			
On recommendation (wholly or mainly) :			
In full undergraduate standing.....	324		35(10%)
In partial standing.....	13	263(76%)	3(23%)
Wholly on examination :			
In full standing.....	4		
In partial standing.....	2	1(50%)	
	<hr/>		
	343		
As special students.....	43	22(51%)	10(23%)
	<hr/>	<hr/>	<hr/>
	534	362(67%)	69(12.9%)

COMPARATIVE NUMBERS AT MATRICULATION.

	1907-08	1908-09
From Colleges—		
Graduates	23	29
With advanced standing	94	90
Without advanced standing	23	18
	<hr/>	<hr/>
	140	137
From Normal Schools	20	11
From Preparatory Schools—		
On recommendation (wholly or mainly) :		
In full undergraduate standing.....	285	324
In partial standing	68	13
Wholly on examination :		
In full standing	9	4
In partial standing	2	2
	<hr/>	<hr/>
	364	343
As special students	50	43
	<hr/>	<hr/>
Total	574	534

CLASSIFICATION BY MAJOR SUBJECTS.

	1905-06	1906-07	1907-08	1908-09
Greek	16	15	19	15
Latin	74	58	54	45
Germanic Languages.....	101	95	92	81
Romanic Languages.....	44	23	20	36
English	222	178	177	165
Philosophy	4	0	2	6
Psychology	7	6	4	3
Education	27	25	26	37
History	104	128	143	139
Economics	93	97	131	144
Law	308	299	295	37
Pre-Legal .....	...	...	...	211
Drawing	30	32	31	33
Mathematics	36	25	34	28
Physics	11	10	13	11
Chemistry	107	84	83	79
Botany	22	28	31	31
Physiology	66	64	53	55
Zoology	32	29	28	30
Entomology	14	12	11	9
Geology and Mining.....	127	126	123	127
Civil Engineering.....	138	146	185	169
Mechanical Engineering.....	76	73	66	63
Electrical Engineering	127	115	117	113
	<hr/>	<hr/>	<hr/>	<hr/>
	1786	1668	1738	1667

DISTRIBUTION OF ENTERING CLASS, 1908-09.

FROM COLLEGES, ETC.

Albion College	2	Cornell College	1
Antioch College	1	DePauw University	1
Beloit College	1	Epworth University	1
Berca College	1	Hamline University	1
Bowdoin College	1	Harvard University	3
Bradley Polytechnic	1	Healdsburg College	1
Brooklyn Polytechnic	1	Indiana University	3
Colorado College	3	Iowa College	1
Colorado School of Mines....	1	Juniata College	2
Columbia University	1	Kansas University	3
Cornell University	1	McKendree College	1

Marvin Collegiate Institute...	1	Idaho	1
Mass. Institute of Technology.	2	Illinois	1
Melborne School of Mines....	2	Manitoba	1
Middlebury College	1	Michigan	2
Monmouth College	1	Minnesota	5
Northwestern University	1	Nebraska	1
Oklahoma State University....	1	Nevada	1
Occidental College	7	Pacific	1
Ohio State University	1	Southern Cal. ..	10
Oregon Agricultural College..	1	Utah	1
Pomona College	12	Virginia	1
Rensselaer Polytechnic	2	Washington	1
Rockford College	1	Wisconsin	1
Santa Clara College	4	Union College	2
Smith College	2	Union Christian College	1
Southern College	1	Victoria College	1
Syracuse University	1	Waseda University	1
Throop Polytechnic	2	Washburn College	1
University of California	15	Wellesley College	1
Chicago	5	Whittier College	1
Colorado	3	Yale University	2
Denver	2		1

FROM NORMAL SCHOOLS.

Greeley (Colo.) State Normal	1	San Jose State Normal.....	2
Iowa State Normay.....	1	Silver City (N. M.) State Nor.	1
Los Angeles State Normal....	1	Superior (Wis.) State Normal	1
Monmouth (Ore.) State Nor..	1	Winona (Min.) State Normal	1
San Diego State Normal.....	2		

FROM PREPARATORY SCHOOLS.

Abbot Acd. (Andover, Mass.)	1	Corona H. S.....	1
Alameda H. S.....	5	Covelo H. S.....	1
Armijo H. S.....	1	Culver Military Academy....	1
Auburn (N. Y.) H. S.....	3	Dana Hall	1
Azusa H. S.....	2	Denver H. S.....	1
Belmont School	4	Des Moines (Iowa) H. S....	3
Bowling Green (Ohio) H. S..	1	Englewood (Ill.) H. S.....	1
Calif. Sch. Mech. Arts.....	4	Eureka H. S.....	1
Castilleja School	3	Fort Collins (Colo.) H. S....	2
Chico H. S.....	3	Fresno H. S.....	1
Cleveland (Ohio) H. S.....	2	Girls' Collegiate, Los Angeles.	5
Colton H. S.....	4	Girls' H. S. (S. F.).....	4

Gloucester (Mass.) H. S.....	1	Phillip Academy	1
Hamlin School	2	Polytechnic H. S. (L. A.)....	6
Harker School	6	Polytechnic H. S. (S. F.)....	2
Harvard School, Los Angeles.	5	Portland (Oregon) Academy..	1
Hill Military Academy.....	1	Portland (Oregon) H.S.....	3
Hitchcock Military Academy..	1	Princeton (Ill.) H. S.....	1
Hoitt's School	2	Red Bluff H. S.....	2
Hollywood H. S.....	1	Redlands H. S.....	12
Honolulu H. S.....	1	Redwood H. S.....	5
Horace Mann (N. Y.) H. S..	1	Riverside H. S.....	6
Keokuk (Ia.) H. S.....	1	Rock Island (Ill.) H. S.....	2
Long Beach H. S.....	3	Sacramento H. S.....	3
Los Angeles H. S.....	17	St. Helena H. S.....	1
Los Gatos H. S.....	4	St. Matthew's School	3
Louisville (Ky.) H. S.....	1	Salt Lake (Utah) H. S.....	1
Lowell H. S.	4	San Bernardino H. S.....	4
Manzanita Hall	5	San Diego H. S.....	7
Marlborough School	2	San Jose H. S.....	16
Medford H. S.....	1	San Luis Obispo H. S.....	2
Mendocino H. S.....	1	San Mateo H. S.....	3
Merced H. S.....	1	San Rafael H. S.....	1
Mills Seminary	5	Santa Ana H. S.....	4
Minneapolis (Minn.) H. S....	1	Santa Barbara H. S.....	8
Mission H. S.....	6	Santa Clara H. S.....	5
Modesto H. S.....	2	Santa Cruz H. S.....	2
Moline H. S.....	1	Santa Monica H. S.....	1
Monrovia H. S.....	2	Santa Rosa H. S.....	5
Monterey H. S.....	1	Savannah (Ill.) H. S.....	1
Montrose (Colo.) H. S.....	1	Seattle (Wash.) H. S.....	1
Morgan Hill H. S.....	1	Selma H. S.....	2
Mt. Tamalpais Military Acad..	1	Spokane H. S.....	1
Mountain View H. S.....	1	Stockton H. S.....	5
Muncie (Ind.) H. S.....	2	Tacoma H. S.....	4
Oahu College	1	Thatcher School	1
Ogden H. S.....	2	Throop Polytechnic	2
Ontario H. S.....	1	Trinity School	1
Orange H. S.....	1	Tulare H. S.....	2
Oshkosh (Wis.) H. S.....	1	University Pacific Academy...	1
Oxnard H. S.....	1	University So. California	3
Palo Alto H. S.....	17	Vallejo H. S.....	4
Pasadena H. S.....	7	Ukiah H. S.....	3
Paso Robles H. S.....	1	Ventura H. S.....	3
Petaluma H. S.....	2	Visalia H. S.....	1
Phil. N. E. Man. Train. H. S.	1	Washburn School	5

Washington (D. C.) H. S....	1	Winamac (Ind.) H. S.....	1
Westlake School, L. A.....	4	Woodland H. S.....	6
Willits H. S.....	1	Yreka H. S.....	1
Winona (Minn.) Academy	1		}

ON EXAMINATION.

College Entrance Examination Board.....	1
College Entrance Examination Board, Stanford, and University of California	1
Stanford and University of California.....	2
Yale	1
College Entrance Examination Board, Harvard, and University of California	1

STATISTICS OF ENTRANCE EXAMINATIONS.

(Not including English.)

	August 1907			August 1908		
	Pass	Fail	Total	Pass	Fail	Total
Elem. Algebra	5	17	22	12	21	33
Adv. Algebra	8	3	11	3	16	19
Plane Geometry	9	11	20	12	18	30
Solid Geometry	2	6	8	4	10	14
Trigonometry	2	4	6	2	11	13
Physics	7	4	11	8	18	26
Chemistry	4	2	6	11	5	16
Physiology	9	4	13	2	11	13
Botany	1	0	1	1	3	4
Zoology	0	4	4	1	1	2
Biology	0	1	1	0	0	0
Ancient History	3	3	6	6	9	15
Med and Mod. History..	2	9	11	2	7	9
English History	10	8	18	4	17	21
American History	6	12	18	5	13	18
Elem. Spanish	1	2	3	1	4	5
Inter. Spanish	1	2	3	0	1	1
Elem. French	1	4	5	2	6	8
Inter French	0	1	1	0	1	1
Adv. French	0	0	0	0	0	0
Elem. German	2	7	9	4	7	11
Inter German	1	2	3	2	0	2
Adv. German	0	0	0	1	0	1
Elem. Latin	1	5	6	3	7	10
Adv. Latin	1	0	1	0	3	3
Elem. Greek	0	0	0	1	0	1
Freehand Drawing	8	25	33	3	21	24
Mech. Drawing	18	5	23	18	5	23
Woodworking	32	25	57	31	11	42
Forge	18	19	37	22	13	35
Foundry	7	0	7	8	1	9
Machine Shop	9	0	9	9	0	9
*Hygiene	1	12	13	0	4	4
	169	197	366	178	244	422

In August, 1907, the number of students taking entrance examinations was 139. Of these 10 were old students making up entrance deficiencies.

In August, 1908, the number of students taking entrance examinations was 128. Of these 6 were old students making up entrance deficiencies.

NUMBER OF SUBJECTS IN WHICH EXAMINATIONS WERE TAKEN BY THE
DIFFERENT CANDIDATES.

August, 1907.		August, 1908.	
No. of Subjects.	Candidates.	No. of Subjects.	Candidates.
1	44	1	44
2	40	2	22
3	21	3	17
4	15	4	11
5	5	5	8
6	7	6	4
7	4	7	10
8	1	8	8
9	2	9	1
10	0	10	2
		11	0
		12	1

Of the 128 candidates for admission taking entrance examinations in August, 1908,

82 entered the University.

16 of these 82 entered as special students.

4 entered as regular students wholly on examination, but none wholly on Stanford examinations; 2 had taken Stanford and University of California examinations; 1 College Entrance Board, California, Harvard, and Stanford examinations, and 1 College Entrance Board, University of California, and Stanford examinations.

REGISTRATION OF STUDIES.

Fifteen units constitute a normal semester's work. The following was the actual registration during 1908-09:

	First Semester	Second Semester
For 1 unit.....	0	0
2	0	0
3	1	2
4	1	3
5	2	5
6	2	1
7	5	4
8	5	9
9	13	14
10	22	31
11	25	29
12	40	49
13	167	176
14	229	207
15	504	431
16	276	220
17	132	142
18	103	98
19	5	4
20	0	3
Over 20	0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1908-09.

	First Semester	Second Semester
Total number of petitions acted upon.....	859	641
To change registration by dropping sub- jects, or taking up new subjects, or both...	584	348
To change major subject.....	46	29
To register for fewer than thirteen units.....	104	109
To register for more than eighteen units.....	7	13
For leave of absence.....	77	54
Miscellaneous	41	88

STATISTICS OF GRADUATION.

The total number of degrees conferred in 1908-09 was 288, distributed as follows:

	Ph. D.	J. D.	A. M.	Engr.	LL. B.	A. B.
Greek .....	..	..	5	..	..	3
Latin .....	..	..	..	..	..	14
Germanic Languages .....	..	..	1	..	..	18
Romanic Languages .....	..	..	..	..	..	2
English .....	..	..	4	..	..	24
Psychology .....	..	..	..	..	..	1
Education .....	..	..	2	..	..	8
History .....	..	..	3	..	..	23
Economics	1	..	1	..	..	17
Law .....	..	6	..	..	..	32
Drawing .....	..	..	..	..	..	6
Mathematics .....	..	..	1	..	..	6
Physics .....	..	..	..	..	..	2
Chemistry	1	..	4	..	..	12
Botany	1	..	1	..	..	7
Physiology .....	..	..	..	..	..	6
Zoology .....	..	..	1	..	..	9
Entomology .....	..	..	..	..	..	..
Geology and Mining .....	..	..	..	..	..	16
Civil Engineering .....	..	..	..	..	..	18
Mechanical Engineering .....	..	..	..	..	..	11
Electrical Engineering .....	..	..	..	2	..	19
	—	—	—	—	—	—
	3	6	23	2	..	254

In the case of the 254 students who received the degree of Bachelor of Arts the period of residence was as follows:

2 semesters	8
3 semesters	2
4 semesters	17
5 semesters	5
6 semesters	24
7 semesters	24
8 semesters	122
9 semesters	36
10 semesters	12
11 semesters	4
	—
	254

The 80 students who took their A. B. degree in less than four years were enabled to do this as follows ("extra courses," meaning courses in excess of the normal 15 units per semester).

Through advanced credit from other institutions.....	44
Through advanced credit supplemented by extra courses.....	11
Through advanced credit supplemented by summer work.....	10
Through advanced credit supplemented by summer work and extra courses	2
Through summer work and extra courses	3
Through summer work, extra courses, and credit for extra entrance units	1
Through credit for extra entrance units and extra courses.....	6
Through extra courses	2
Through advanced credit, extra entrance, and extra courses.....	1
	—
	80

FACULTY LEGISLATION.

The transfer to the University of Cooper Medical College of San Francisco, and the consequent establishment of the department of Medicine, made necessary legislation defining requirements for admission to the course in Medicine and the general relation of the department to the other work of the University. The matter was carefully considered by a special Committee appointed by the President. The report of this Committee was approved by the Board of Trustees, October 30, and by the Academic Council, December 1. Its provisions are printed in the Fifth Annual Report of the President (pp. 18-19).

The question of a revision of the entrance requirements of the University was brought to the attention of the Executive Committee by a communication of the President to the Secretary of the Committee, dated September 7, 1908, as follows:

"Quite recently the University of California has revised its course of study and its requirements for admission. In the latter, it has adopted our theory, that the student should not be required to select his course of study while in the preparatory school. Therefore, all students admitted are free to enter any department. They have adopted also a certificate of completion of the work of the junior college, and the junior college is regarded as a transitional period between the preparatory school and the beginning of real professional work, and as a place where the required studies would naturally come in, this depending on the nature of the profession to be followed.

"It would seem to me wise to make our entrance requirements coincide with these, as far as possible, and I would suggest that you bring the matter before the Executive Committee, toward the end of further unification, if practicable."

Again, under date of October 27, in a communication to the Chairman of the Committee on Admission, as follows:

"Permit me to suggest that you bring again before your Committee the question of entrance requirements, and the question of whether it would be desirable to set off by themselves a series of the less common ones, with a statement to the general effect that these may be counted toward the formation of the fifteen units for students who come from secondary schools of especial excellence, or under certain qualifying circumstances which you can readily indicate as corresponding to the facts. I would suggest that your Committee bring forward two or three alternative statements, and let the matter be laid before a meeting of the University Council at some convenient date."

At a meeting of the Board of Trustees held October 30, 1908:

"It was resolved that the matter of entrance requirements of the University be referred to the Faculty for reconsideration, with the request that it report to the Board of Trustees at its early convenience."

At the regular September meeting of the Executive Committee the President's first communication was referred to the Committee on Admission with request that the whole matter be given consideration and report made to the Executive Committee. At the meeting of the Academic Council held December 1, 1908, the resolution of the Board of Trustees of October 30 was referred to the Executive Committee for preliminary consideration. The Committee on Admission submitted its report December 14, 1908. Action was taken by the Executive Committee. December 17, 1908, and by the Academic Council, January 8, 1909. The statement adopted by the Council explaining the policy of the University in the matters under review is printed in Appendix IV.

March 5, 1909 the following resolution was adopted by the Board of Trustees:

"That in printing future *Registers*, under the head of entrance subjects, the reference to stenography, music, domestic science, book-keeping, and other unusual studies be omitted or referred to generally as other subjects properly taught in well equipped high schools."

Action was taken by the Academic Council April 8, 1909, as follows:

"That in view of the action of the Trustees of March 5, 1909, in relation to printing in the Register, only those subjects in which entrance examinations are given by the University, namely, subjects 1-28, be printed in the Register and Admission Circular; that instead of the outline of subjects 29-35 heretofore given, it be stated in a general way that

information concerning other subjects will be furnished on application to the Registrar."

In January, 1909, the Department of Geology and Mining submitted the following recommendations:

"It is unanimously recommended, subject to the approval of the President and the constituted authorities, that:

"1. In order to graduate in mining, students are required to complete the course laid down for the degree of Engineer of Mines.

"2. Hereafter the degree of Bachelor of Arts will not be conferred for work in mining and metallurgy, except that students who complete the four years' course by or before May, 1910, or who entered that course and have remained in residence, will be given the A.B. degree upon its completion.

"3. After May, 1910, students who have previously been in the department, but who have been absent one or more semesters, will be required to complete the course for the degree of Engineer of Mines in order to graduate."

These recommendations were considered at several meetings of the Executive Committee, in conference first with the Department of Geology and Mining and afterward with all the Engineering departments. The recommendations were adopted and transmitted to the Academic Council, March 18. April 8, they were tabled by the Council, without discussion, on motion of Professor Branner of the Department of Geology and Mining.

By action of the Academic Council, taken April 8, on recommendation of the Committee on Delinquent Scholarship and the Executive Committee, the scholarship regulations were modified in one important particular, namely, that the usual semester of enforced absence from the University, in case of first failure in scholarship, be no longer required, but that, with the approval of the major department, the student be permitted his second trial at once.

The Academic Council, April 8, passed a resolution recommending to the President and Trustees that the University become a contributing member of the American Schools for Classical Studies in Rome and Athens.

At various times during the years 1907-08 and 1908-09, President Jordan brought to the attention of the Executive Committee proposals looking toward a reorganization of the University through the elimination of the freshman and sophomore years, through the division of the undergraduate years into junior and senior colleges, through the adoption of a three years' course for the A.B. degree with this degree a prerequisite for admission to professional courses, etc. May 5, 1909, the Academic Council authorized the President to appoint a special committee which should take into consideration the matters proposed, and named the members of

the Executive Committee as part of such special committee. President Jordan completed this committee by adding the members of the Advisory Board. Action by this special committee was deferred until the beginning of the academic year, 1909-10.

Majority and minority reports from the sub-committee on examinations, authorized by resolution of the Academic Council, January 11, 1907, were transmitted to the Council through the Executive Committee, May 3, 1909. Action on these reports was deferred by the Council until the next academic year. The reports are printed in Appendix V.

APPENDIX IV

ENTRANCE REQUIREMENTS OF THE UNIVERSITY.

STATEMENT ADOPTED BY THE ACADEMIC COUNCIL, JANUARY 8, 1909, IN THE
MATTER OF THE RESOLUTION OF THE BOARD OF TRUSTEES
OF OCTOBER 30, 1908.

At a meeting of the Board of Trustees, held October 30, 1908, "It was resolved, that the matter of entrance requirements of the University be referred to the faculty for reconsideration, with the request that it report to the Board of Trustees at its early convenience."

In two respects the admission requirements of the University have recently been called in question: First because, with the exception of English Composition, free election among all the subjects in the entrance list is allowed. Second, because of the introduction in recent years of the so-called vocational subjects, and particularly of music, domestic science, and commercial subjects.

The former practice of all the universities of rigidly prescribing the subjects deemed essential for admission, was assumed to be necessary for two reasons: On the one hand, the prescribed subjects were held to have special and superior disciplinary value, or were demanded as direct preparation for advanced college courses. On the other hand, particularly in colleges receiving students on the certificate plan, it was felt that college prescription was the only means by which a properly co-ordinated secondary school programme could be maintained. The first of these reasons has been weakened by the widespread doubt regarding any peculiar value inherent in the traditional curriculum, by the inclusion of college subjects which either do not depend upon preparatory training in special fields or call for preparation along other lines, and by the fact that the number of secondary subjects of unquestioned value is much greater than can be undertaken by any one preparatory student. This last fact especially led naturally to the establishment of admission groups, corresponding to parallel high school courses, permitting, with certain constants, a different combination in each group. A more modern form consists of the prescription of certain constants with practically unlimited choice, within a restricted list of subjects, as to the remainder of the points or units specified for admission. Assuming fifteen units required for admission,

the National Educational Association Report of 1899 recommended “as suggestive rather than unalterable” the following constants: English (2 units), Mathematics (2 units), History (1 unit), Science (1 unit), Foreign Languages (4 units). Nearly all changes in entrance requirements since that date have had this recommendation in mind. The following table shows the present requirements of various leading universities with reference to these constants:

	Engl.	Math.	Science	His- tory	For. Lang.
N. E. A. Recommendation	2	2	1	1	4
California	2	2	1	1	4
Harvard .....(A.B.)	2	2	1	1	4 (2 Anc., 2 Mod.)
(B.S.)	2	2½	1	1	4 (Mod.)
Yale .....(A.B.)	4	2	.	1(Anc.)	8 (4 Latin, 3 Grk. [Adv. Math.], 1 Mod. Lang.)
(B.S.)	4	4½	1	2	3½ (2½ Latin, 1 French. or German)
Chicago	3	2½	..	..	3 (or 4)
Columbia .....(A.B.)	2	3	..	..	4 (Latin)
(B.S.)	3	3	..	..	4 (Latin or Chem., Physics, 2 Adv. Subjects)
Wisconsin	2	2	..	..	2 (Maybe deferred and taken in Univ.)
Michigan .....(A.B.)	3	3	1 (Physics)		2
(B.S.)	3	3½	2 (Physics, Chem.)	1	2
Minnesota .....(A.B.)	4	2	..	..	2
(B.S.) (Engr.)	4	3	1 (Chem.)	..	2
Cornell	3	2	..	1	4
Pennsylvania ..(A.B.)	3	2	..	1	4 (to 6)
Princeton .....(A.B.)	3	2	..	1	9
(B.S.)	3	3	..	1	8 (or 6 and 2 Sci- ence)

When, in the first year of its existence, Stanford University abandoned the system of prescription, it was not because of indifference to a wise co-ordination of subjects in the case of every preparatory student. It was in part through a feeling that admission groups were not flexible enough, and also because the faculty was unable to agree upon any of the lists of constants proposed. A more fundamental reason was the conviction that

the whole problem of the secondary curriculum, its arrangement, its co-ordination of subjects, its adaptation to individual needs, was primarily one for secondary schoolmen, and that the University could make its contribution to the solution of the problem in some better way than by prescription of subjects.

Whether or not the faculty was right in its contention, it is clearly demonstrable that seventeen years of experience have not brought harm to the University. Its free election has not lowered standards or brought to its doors the product of unbalanced courses of preparatory study. On the other hand, the University has been saved the friction, the enormous and thankless labor, which devolves upon a committee on substitutions under a prescriptive system. Statistics of the 1908 entering class, which follow, show that rather more than half of the matriculates coming directly from the schools fulfill the constants suggested in the National Educational Association Report. It is believed that an examination of the 142 cases not fulfilling these ten constants will not disclose any combinations which the University need hesitate to accept. Scholarship statistics are not yet available, but it will be surprising indeed if any material difference between the two groups is shown.

The fact seems to be that prescription by the University is unnecessary as a means of protecting entrance standards. There is no need of a Chinese wall, because there is no enemy at large. Secondary schoolmen have the problem well in hand. They are working at it with more intelligence, because with more intimate acquaintance, than college men can bring to bear. The college may help, particularly by testing the results accomplished, not necessarily by formal examinations, but by insistence upon a high standard in the individual subjects which may be offered. On the other hand, prescription by the college is often felt to be a serious hindrance in working out the larger problems which chiefly concern the secondary school.

The second objection has to do with the new subjects which may be offered for entrance credit.

During the last ten years the following additions have been made to the Stanford entrance list: Mediaeval and Modern History, Biology, Hygiene, Shopwork, Mechanical Drawing, Architectural Drawing, Astronomy, Biblical History and Literature, Civics, Economics, Physical Geography, Music, Domestic Science, and Commercial Subjects. Of these Mediaeval and Modern History, Biology, Mechanical Drawing, Astronomy, Civics, Economics, and Physical Geography have an established place among college entrance subjects. Shopwork was included in recognition of the manual training high school, which has long since passed the experimental stage: there is no question as to the standing and excellence of the larger manual training high schools. Biblical History and Literature was first outlined by the University of Chicago, and is presumably due to the influ-

ence of Professor Moulton of that institution, who has worked so strenuously to develop and strengthen the literary study of the Bible. For obvious reasons the high schools have not been able to take up this work, and the subject is offered only occasionally and from private schools. Music has long been in the Harvard list. In 1906 a joint committee of the Eastern Educational Musical Conference and the New England Education League outlined a careful course in music which was adopted by Columbia University and included in the examination subjects offered by the College Entrance Examination Board. As soon as the subject was thus standardized it was put upon the Stanford list without question. As a matter of fact, music, as it has ordinarily been taught in the high schools, does not meet these requirements, and it is not to be expected, for the present, that it will be offered for entrance credit. Hygiene did not meet any demand of the high school course, but was added to the list on the earnest recommendation of the Department of Hygiene, in order to encourage serious attention to this subject in the high school, and because it was represented that with this incentive certain high schools would be able to carry out their cherished desires to this end. As a matter of fact, the subject is making its way very slowly, and practically no schools have as yet undertaken to meet the demands. Domestic Science and Commercial Subjects have received some scattered recognition from various colleges, and are now, for example, very generously treated at Minnesota. However, Domestic Science and Commercial Subjects are still the newest of the candidates for equality of high school rank. Standards are not yet fixed and uniform. Much of the work attempted is still too crude and too poorly taught to warrant recognition. The University must naturally pursue a conservative policy, and this it is doing, as will be shown by a reference to the statistics of the 1908 entering class. The favorable attitude of the University can be understood only by looking at the problem and status of commercial courses from the secondary point of view.

The old time preparatory course justified itself, not because classical scholarship was possible of attainment in the secondary school, but because the way was prepared for a college course which realized in large measure the culture aims of classical study. For those whose permanent interests and real abilities are discovered and cultivated in this way there is still perhaps no better form of preparation. For those whose interests and capacities are better stimulated in other ways there have been arranged groups which, while permitting a considerable range of choice, carefully prescribe those subjects or constants regarded as fundamental. Why should not the college stop here? Why should not the college dictate to the high school the particular subjects approved by the college? Let those pupils who are preparing to enter college elect the college group. Let pupils who are not preparing for college take different subjects if it is thought desirable to offer them.

To a considerable extent the colleges have taken this point of view. And such has been the prepondering influence of the college that the development of the high school has been very materially determined by the admission requirements of the colleges. In many ways this supervision and direction has promoted high standards and reacted favorably upon the high school. On the other hand, it has retarded the high school response to community needs. In following a two-fold purpose—to prepare for college and to prepare for practical life—it is the latter aim which has been slighted. And this in spite of the fact that only about eight per cent. of those who begin high school courses, and only thirty per cent. of high school graduates, ever enter any college. “The great sin of our public high schools,” to quote President Eliot of Harvard, “is that they give an inferior course of instruction to those children whose education is to be the shortest.” The 1896 National Educational Association Report declared that “it is unwise, impracticable, and impossible to divide the pupils in our public high schools into two distinct classes, the one preparing for college and the other for life;” and, again: “A majority of our young people who go to college come to a decision late in their secondary course.”

The American high school was originally started without any thought of preparing pupils for college. The high school itself was to be the people’s college. Coming under the sway of college influence its work was strengthened and standardized, but its development as an institution to prepare pupils for immediate practical life retarded. Nevertheless this purpose has reacted upon the college, as is witnessed by the extension of the list of entrance subjects, the arrangement of admission groups, and finally by placing emphasis upon certain constants only. The college has come to realize, first, that articulation between the high school and the college is vital to the college; and, secondly, that the high school, while still careful to arrange courses to meet college requirements, is actually breaking away from college dominance and beginning to consider primarily the needs of the community.

The rapid development in recent years of manual training, polytechnic, and commercial high schools, and the introduction of studies of this character into regular school courses, indicates the extent to which the secondary schools are emphasizing this point of view. The question whether the college should recognize polytechnic and commercial courses is, educationally, one as to the kind of preparation for future training which these courses offer. Do commercial and polytechnic courses inform and develop the mind so that graduates of these courses may profitably enter upon the more advanced studies which colleges, universities and technological schools offer? Are the graduates of manual training, polytechnic, and commercial high schools able to succeed in the same classes, or the same institutions, with graduates of standard high school courses?

Only time and experience can give a final answer to these questions. Meantime these courses are here to stay. They make the same claim as do the recognized preparatory courses, namely, that for a considerable number of pupils they are the best, if not the only, means for developing and cultivating permanent interests and capacities and for realizing the aims of culture study.

The champions of vocational subjects can at least affirm that they develop interest, alertness of mind, and purpose in pupils who would respond listlessly if at all to the traditional courses. Most of these pupils are not looking toward further education; for most of them the way to further education will not be open. What will the college say to those who develop a desire for further training and for whom a way is found? The college can require that such pupils make up and complete the regular entrance requirements, or deny admission. Is the college justified in doing this?

Without discussing this question in detail, it may be said that the trend of modern educational opinion is toward laying less stress upon particular subjects and more upon the way a subject reacts upon the pupil. Moreover there is no manual training, polytechnic, or commercial high school course which may not provide for keeping open the "five windows of the soul" or whatever number of windows may be found desirable. But here, as has already been pointed out, it is the secondary school that is near to the problem and that is best equipped to deal with it successfully.

The logical inference is this: The standard of entrance preparation is the four years' high school course. Let the problem of co-ordination of subjects, of prescription and election, of arrangement of courses, be dealt with by those most acquainted with the purposes and actual results of secondary education—with such advice and co-operation as the college may be able to give. Let the college insist upon certain things in entrance preparation vital to its own work: Adequate instruction, thoroughness, completion of a regular course with high credit. No harm has come to the University or its standards through its free elective system of entrance subjects. No harm is likely to come through conservative recognition of manual training, polytechnic, and commercial courses. The University can do the secondary school great service by strengthening and promoting its tendencies toward sound work in every subject undertaken. Careful of this point it can safely leave to the secondary school the whole problem of courses and subjects. The University will be safe in admitting any candidate "who have successfully devoted four years to earnest study in a well-equipped secondary school, whatever the combination of studies that has developed his power and been in harmony with his intellectual aptitudes." Further modification of the Stanford entrance requirements should, in the judgment of the Academic Council, be made along the lines which have been consistently followed for the whole period of the University's history.

STATISTICS OF THE 1908 ENTERING CLASS.

Number fulfilling the requirement of 10 constants suggested by the 1896 N. E. A. Report.....	160	53%
(2 English, 4 Foreign Language, 1 Science, 1 History, 2 Mathematics.)		
Number not fulfilling 10-constants requirement.....	142	47%
		<hr/>
		302

Of the 142 not fulfilling:

- 18 lack science.
- 6 lack history (1 of which offers no foreign language).
- 13 offer no foreign language (1 of which offers no history).
- 69 offer only 2 units of foreign language.
- 1 offers only 2½ units of foreign language.
- 17 offer only 3 units of foreign language.
- 4 offer no mathematics.
- 7 offer only 1 unit of mathematics.
- 3 offer only 1½ units of mathematics.
- 1 offers only 1 unit of mathematics and no science.
- 1 offers only 1½ units of mathematics and no science.
- 1 offers only 1 unit of mathematics and 3 units of foreign language.
- 1 offers only 1½ units of mathematics and 3 units of foreign language.
- 1 offers only 1½ units of mathematics and 2 units of foreign language.

Of the 100 short in foreign language, 79 offer 4 units in English.

Of the 18 who offer no science, 5 are men, from the Cleveland (Ohio), Louisville (Kentucky), and Red Bluff High Schools, and 2 entering on examination; 13 are women, 4 from the Palo Alto High School, and 1 each from Washington (D. C.) Central High School, Pasadena High School, Throop Polytechnic Institute, Marlborough School for Girls (Los Angeles), Washburn School (San Jose), Honolulu High School, Dana Hall (Wellesley, Mass.), and Gloucester (Mass.) High School. Five of these offer drawing.

The 4 who offer no mathematics are 3 girls, 1 each from Girls' High School (San Francisco), Lowell High School (San Francisco), and Harker School (Palo Alto), and 1 man from Pasadena High School described as "a fine youth whose energies are largely devoted to biological study."

These four offer the following (order as above) :

	English	Science	History	Foreign Language	Drawing
(1)	4	4	3	4	..
(2)	4	3	4	4	1
(3)	3	2	1	10	..
(4)	4	3	4	4	..

The 8 who offer only one unit in Mathematics are all girls, 1 each from Girls' Collegiate (Los Angeles), Harker School (Palo Alto), Preparatory Department of University of Southern California, Redlands High School, Palo Alto High School, Petaluma High School, Girls' High School (San Francisco) and Stockton High School.

These 8 offer the following (order as above):

Eng.	Math.	Science.	His.	For.	Lang.	Draw.
4	1	2	3		6	..
4	1	1	2		7	..
4	1	3	2		6	..
4	1	2	1		7	..
4	1	1	3		4	2
4	1	2	3		5	..
4	1	3	3		4	..
4	1	..	4		6	..

The 4 who offer only 1½ units in Mathematics are 1 girl, from the Pasadena High School, offering:

Eng.	Math.	Science.	His.	For.	Lang.	Draw.
4	1½	2	1		7	½

and 3 men, 1 each from the Hollywood High School, Eureka High School, and Pasadena High School, offering:

Eng.	Math.	Science	His.	For.	Lang.	Economics.
4	1½	2	2		6	..
4	1½	3	3		4	..
4	1½	..	4		5	½

The 6 who offer no history are 1 girl from the Princeton (Ill.) High School, and 5 men, 2 from Los Angeles High School, and 1 each from Cleveland (Ohio) High School, Pasadena High School, and Redlands High School. The units offered, in the order named are as follows:

Eng.	Math.	Science	For.	Lang.
3½	2½	2	5½	1½ com. subjects.
3	3½	3	4	2 drawing.
2½	4	2	4	2 drawing; ½ shopwork.
3½	3	4	4	½ shopwork.
4	3½	3	6	½ drawing.
3	3½	4	..	2 draw.; ½ shop; 1 book.

The candidate from the Cleveland High School offered a year of general history, which was not accepted.

The candidate from the Redlands High School completed one unit of history and two of foreign language in the high school but with a mark below the recommending grade.

The candidate lacking one unit of foreign language and ½ unit of Mathematics, offered:

Eng.	Math.	Science.	His.	For. Lang.	Draw.
4	1½	1	4	3	2

The candidate lacking 2 units of foreign language and ½ unit of mathematics, offered:

Eng.	Math.	Science.	His.	For. Lang.	Draw.	Shopwk.
4	1½	2	4	2	1	½

Matriculates offering shopwork:

Eng.	Math.	Sci.	Hist.	For. Lang.	
4	3	2	2	2	1 draw.; ½ shop.
4½	4½	2	2	2	2 draw.; 2 shop.
4	4	..	1	5	.. draw.: 1 shop.
3½	2	3	1	4	.. draw.; ½ shop; 1 bookkp.
3	3½	4	..	..	2 draw.; ½ shop.
4	3½	2	1	2	2 draw.; 2 shop.
3½	3	3	2	..	1½ shop.
4	2	1	3	2	2 draw.; 1 shop.
4	3	3	3	2	1 shop.
2½	4	2	..	4	2 draw.; ½ shop.
4	1	1	2	3	1½ draw.; 2 shop.
3	2½	4	1	2	2 draw.; ½ shop.
4	1½	2	4	2	1 draw.; ½ shop.
1	3½	3	3	3	1 shop.
2½	2	2	2	2	2 draw.; 2 shop.
3	2½	2	4	2	1 draw.; 1 shop.
4	2½	..	4	4	½ shop.
2½	3½	2	3	2	½ draw.; 1½ shop.
4	3	3	2	2	1 draw.; ½ shop.
4	3	2	1	4	½ draw.; ½ shop.
3½	2½	3	3	..	2 draw.; ½ shop; ½ econ.
2½	3½	2	4	2	½ draw.; 1 shop.
3½	3	4	..	4	.. draw.; ½ shop.
4	3	3	1	2	.. draw.; ½ shop; ½ civics.
1½	3½	3	3	2	2 draw.; ½ shop.
4	3½	2	2	2	2 draw.; 2½ shop.
2½	3½	3	1	4	2 draw.; 1½ shop.
3½	2½	3	3	..	2 draw.; 1 shop.
3½	2½	2	1	2	1 draw.; 2 shop.

Candidates offering Domestic Science and Commercial Subjects :

Eng.	Math.	Sci.	Hist.	For.	Lang.
4	3	2	2	2	1 draw.; 1 bookkeeping.
4	2½	4	4	2	1 draw.; 1 domestic science.
3½	2	3	1	4	½ shop; 1 bookkeeping.
3	3½	4	..	..	2 draw.; ½ shop; 1 bookkeeping
3½	2	2	2	2	1 draw.; ½ economics; 1 bkk. 1 short-type; 1 C. H.
4	3½	2	3	..	2 draw.; 1 bookkeeping.
4	2½	2	3	3	½ Com. hist.
4	3½	2	1	4	1 bookkeeping.
2½	3½	1	3	2	½ draw.; 1½ shop; 1 bkkp.
4	2½	3	3	..	1 draw.; ½ econ.; 1 C. H. Geog. law.
3	2½	3	2	4	1 shorthand-typewriting.
4	3	2	3	2	1 bookkeeping.
4	2	..	1	8	1 bookkeeping.
4	3	2	3	4	1 bookkeeping.
4	2	3	1	2	1 bookkeeping; 1 short-type; 1 Com. hist.; Geog. law.
4	2	3	1	2	1 draw.; 1 bkkp.; 1 short-type; 1 Com. Hist.; Geol. law.

The following table shows the distribution of entrance subjects offered by the 302 matriculates :

Entrance subjects in list ten years ago :

English	302	100%
Mathematics	298	98.6
Physics	220	72.8
Chemistry	163	53.9
Physiology	28	9.2
Botany	56	18.5
Zoology	42	13.5
History	296	98.
Spanish	27	8.9
French	72	23.8
German	119	39.4
Latin	217	75.1
Greek	11	3.6
Drawing*	113	44.

*Mechanical Drawing added since 1898; Freehand Drawing in original list of entrance subjects.

Entrance subjects added since 1898:

Biology	12	3.9
Hygiene	0	0
Shopwork	29	9.6
(14 on examination)		
Astronomy	0	0
Biblical and Hist. and Lit.....	4	1.3
Civics	4	1.3
Economics	12	3.9
Arch. Drawing	0	0
Physical Geography	91	30.1
Music	0	0
Domestic Science	1	.3
Bookkeeping	13	4.3
Stenography and Typewriting.....	5	1.6
Com. Hist., Geog., and Law.....	5	1.6

Percentage Comparison, 1898-1908.

	1898	1908
Mathematics	97.5	98.6
Physics	42.8	72.8
Chemistry	42.3	53.9
Physiology	4.8	9.2
Botany	1.9	18.5
Zoology	1.9	13.5
History	93.6	98.
Spanish	2.9	8.9
French	18.2	23.6
German	22.6	39.4
Latin	79.8	75.1
Greek	6.4	3.6
Drawing	2.9	44.
Biology		3.9
Hygiene		0
Shopwork		9.6
Astronomy		0
Biblical Hist. and Lit.....		1.3
Civics		1.3
Economics		3.9
Arch. Drawing		0
Physical Geography		30.1
Music		0
Domestic Science .....		.3
Bookkeeping		4.3
Stenography		1.6
Com. Hist., Geog. and Law.....		1.6

APPENDIX V

ENTRANCE EXAMINATIONS.

REPORTS OF SUB-COMMITTEE OF EXECUTIVE COMMITTEE, TRANSMITTED TO
ACADEMIC COUNCIL, WITHOUT RECOMMENDATION, MAY 3, 1909.

MINORITY REPORT.

Three factors mainly contributed to start the investigation which your committee has made. Its report will be somewhat more intelligible if they are briefly stated. They are: First, a conviction on the part of at least one of us, that the higher standard required of the women candidates for admission to this college should in fairness be applied to the men also, and enforced with the same strictness (see Minutes Executive Committee, November 6, 1905); second, increasing dissatisfaction with the quality of the students, women as well as men, sent from most of the schools to this college with certificates of adequate preparation (see Minutes Executive Committee, December 15, 1906); third, the statement of the President of the University that, unless the income of the University should proportionally increase, there must presently be devised a plan for restricting the number of students. In view of this last consideration the Academic Council voted, on January 11, 1907, "that in view of the necessity on the part of the University of limiting the number of students, the Executive Committee be and hereby is instructed to examine the plan of admission by examination only, to ascertain the feasibility of the plan, whether it would probably restrict numbers, and if so, whether it would limit numbers to those of superior qualities, and having made careful study of the question, to report its conclusion, with or without recommendation, to the Academic Council." On the first of February this resolution was brought before the Executive Committee. On the 28th of February the President named Messrs. Pierce, Elliott, and Marx as a sub-committee to make the investigation above prescribed and to report to the Executive Committee.

The question of the equality of the conditions of admission for men and women is now fairly answered, for practically the same qualifications are nominally required of all candidates. The matter of restricting numbers is not yet of pressing importance. There remains, therefore, the question whether the candidates for admission to this college are as well prepared as they should be.

Bearing in mind the direction of one of the Founders that this University "should be kept, as far as practicable, in harmony with the public educational system, and that, in the matter of entrance requirements as well as in every other relation of the University with the general public, the University authorities should take into consideration the welfare of those who do not attend the University as well as those who do*," and with the wish to help the public schools as much as possible, it may nevertheless be asked whether this college or any other need accept, without question, the products of the schools. Recognizing too that the secondary schools should not be limited in their work to a special course for the comparatively small proportion of their pupils who plan to enter a college, we may nevertheless use our influence to require that the quality of work done by the school, and the state of development and the degree of information of the mind of all the pupils should be high. These very desirable results are perhaps attained in the majority of the graduates of the schools, but the minority sent to this college do not lead us to suppose this to be the case. In spite of the lack of preparation, development, quality which we recognize in the majority of those who enter this college, these persons are certified to be all that we can reasonably wish. There seem to me to be only these alternatives: either our admission requirements, when complied with, do not give us what we wish; or they are not complied with. If they are not complied with, we stultify ourselves year after year by accepting pupils with false certificates of fitness. It is not the duty of this committee to consider our entrance requirements; we must assume their reasonableness. We have, then, merely to deal with the question of whether they are complied with and whether, if not, anyway can be devised of enforcing them.

FIRST. Are our entrance requirements complied with?

Answers to this question are furnished in at least two ways: By the signed statements of the members of this faculty, and by the records of the Registrar and of the Scholarship Committee.

Your committee sent a circular letter, a copy of which is appended, to each member of the Academic Council, requesting answers to the questions stated and also asking for suggestions regarding the matter. The answers numbered 23. Asking for opinions, we got opinions, of considerable variety. Some seem to be entirely satisfied with the working of our present plan. Others admitted a mild wish, but no hope, for students better prepared. Others were dissatisfied and advocated the entrance examination system. Still others thought that though we had been deceived every year since the University opened, we never should be again.

*Trustees' Manual of Legislation, Trusts, etc., first Edition, November 2, 1908, page 79.

For facts we turned to the official records of the University. At the request of this committee the Registrar generously caused the following table to be prepared. This shows only the scholarship record, not the record of conduct, of the members of the class entering in August, 1904.

Students entering in August, 1904.....	511	
“ graduating in 4 years or less.....	154	30%
“ remaining as undergraduates, November, '08...	65	13%
“ suspended at least once for delinquent or deficient scholarship	97	19%
“ suspended twice for delinquent or deficient scholarship	21	4%
“ suspended at least once and still here.....	...	2%
Assumed cost to the University, for all purposes of each student		\$200

For the purposes of this report the fairness of our method of dealing with delinquent scholarship must be assumed.

This being the case, we find that the scholarship of very nearly one-fifth of the class entering in 1904, and supposed to graduate last May, so obviously bad as to require the imposition of the serious penalty of suspension. Since suspension came to these students at different times, not all at once and early in their college course, we must grant that a fair proportion of their number were doubtless bright, wasteful of time and effort, preparing no better for the future than they had prepared for the present, but able to do well when they will. Others no doubt suffered from ill-health or anxiety of one sort or another. But the remainder of the 19% must have been dull and really unprepared to profit by the opportunities which college offers. Let us conservatively call this one-tenth of the whole number.

Taking into account the tender heartedness of all college officers, their wish to spare where sparing may mean salvation, we may estimate the number of those who barely escape suspension as nearly or quite equalling those to whom it comes. On the same basis as above, we may assume that some of those are bright and lazy, some are capable but worried or ailing, and about one-half are dull, incurably uneducated, lacking the family tradition of alert minds, correct speech, and that sensitiveness which supplements the intellect and informs the mind when example takes the place of precept.

Adding these two sums together, we come to the very conservative estimate that one person in five certified to be fitted for college is not so.

On referring again to the Registrar's table, we see that only 30% of the class graduate in four years or less, that 13% are still in college, that one in six of these was delayed by suspension. Although no doubt

some of those who did not graduate at the usual time were delayed by ill-health, self-support, and other proper causes, the remainder must have been held back by the same qualities and deficiencies which embarrassed one-half of those suspended. When we realize that 30% are suspended for delinquent or deficient scholarship, and that 13% do not manage to accumulate 120 units in four years with which to buy a diploma and go, we must raise our estimate of the proportion of the certified who are, after all, not prepared; the proportion is nearer one-third than one-fifth.

What does this cost the University?

It is impossible to estimate the cost in time, energy, and strength of the teachers and classmates of these defectives or deficient; but everyone has experienced the delay of a whole class by the presence of one of these. We can, however, make a rough estimate of the cost in dollars and cents. Suppose 125 (less than one-fourth) of this class of 511 entering in August 1904 to have been less than they were certified to be, and estimate the cost of each student upon the University at \$200 per annum for all purposes, this amounts to the sum of \$25,000 for one year. This is the cost of deficiency.

From the Registrar's figures it is evident that this is not the cost of deception, for we are not deceived as to the quality of our entering classes. This is the cost of accepting, year after year, what we know is not what it is certified to be. This is the cost of indifference. Are we any more justified in allowing the expenditure of this sum of money per annum in this way by this University than we should be in year after year accepting for our laboratories supplies which correspond neither with our requirements nor with the statements of the shippers?

Having seen that our entrance requirements are, to a considerable extent, not complied with we may turn to the second part of our enquiry: Is there any way of enforcing them?

This question is answered mainly in two ways. The one seems to me foolish, with the showing above made; the other by no means meets one's ideals. The one answer is, by the certificate system. The other is, by the entrance examination system. Many of us feel favorable to the former because we have that system, because we have not known the other, and because it is easier to go on as we are. Many favor the latter because of dissatisfaction with the results of the former, and because experience with the latter system leads them to think that its results are better.

We have seen that the present certificate of fitness for college has little more value than the discredited "certificate of good moral character." Is there any cure for this? In business a certificate or guarantee is regarded as having no value unless it is accompanied by security. Can we fairly exact any security from the schools, can we make their word better by requiring a bond, and what form could such a bond fairly

take? Some colleges practice the withdrawal of the accrediting privilege from schools whose graduates fail to do well in college. There is this element of unfairness in this plan. The school is made to suffer directly for what may only indirectly be its fault, the inability of the individual to adjust himself to the new college conditions, so different from those of the school. This inability may be due to laziness, incompetence, or even sheer ignorance. If it is due to the first it is not the fault of the school, and the school should not be made to suffer for it. If it is due to the second or third, the school did wrong to certify fitness. But under this plan there is another undesirable result, namely that the school which sends to college those who "muddle through," although we know that the intellectual life of the college and of the world is maintained and quickened not by the mediocre but by the exceptional. There is little in this plan to stimulate the originality and initiative of the teachers and to arouse the energy and will of the pupils. The high-school boy and girl aim to secure from the school a certificate issued in return for accumulated marks, not as evidence that they have stood any real test of knowledge or efficiency; and they jog along through college again adding up marks till they reach the inspiring sum of 120. Then we send them away with *our* certificate.

The case against the present system of admitting students to this college on certificate may be summarized as follows:

- (1) It does not enforce our nominal entrance requirements (as shown above).
- (2) Its effects on the teachers are undesirable:
 - (a) They must cover the ground in order to certify and a certificate is merely a statement of this as a fact;
 - (b) They are subject to pressure, from pupils, friends, principal, and boards, to make as favorable statements as possible;
 - (c) This pressure is often a temptation, for the reputation of a school among schools and patrons depends largely upon the numbers accredited.
- (3) Its effects on the pupils:
 - (a) They are not thorough in covering the ground prescribed;
 - (b) They study only what is necessary to secure a certificate;
 - (c) They are conscious that different schools have and apply different standards.
 - (d) They are subjects, therefore, to standards which vary with the conscientiousness, intelligence, and wisdom of the teacher.
- (4) Its effects are local, not national.
- (5) Its effects, good and bad alike, are brought about mainly by another college, for we do not visit, examine, or make much of an attempt to influence the schools.

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will depend upon a variety of considerations. First, if the quality of such students as we should receive under this plan were superior to that under the certificate plan, the reputation of the college would improve. Second, if the reputation of the college improved, we should again see an increase in numbers; and if the increase in numbers were an increase in the number of well prepared and competent students, we should all welcome them.

The fundamental question, then, seems to be whether adopting the entrance examination system would give us better students. Although there seems to me only one logical answer possible to this question there are of course two answers given. Although we ourselves as teachers constantly use examinations in order to separate the sheep from the goats, many of us say that entrance examinations will not do so. Why entrance examinations should be so different from others it is difficult to see. We will all admit that an examination is a poor substitute for personal acquaintance with the candidate by ourselves; but that an examination skillfully drawn up by reasonable and intellectual men working together for the purpose of distinguishing the sheep from the goats is necessarily and regularly less reliable than the word of the average school principal whom we do not know is not to be believed. That there are undesirable results of the examination system, wherever applied, no reasonable man will deny; but it is the universal practice of mankind, the world over, to test before taking. This practice, born of experience, is not perfect; but it is the best experience has so far given the race; and to state that "our conditions are different" is a reason not so good as it is frequent here.

The educational value of examinations is not always recognized. Particularly in the west, children pass from one grade of the public school to another, until they reach college, without at any time taking account of stock, without finding out what they do and what they do not know, what they have "had" but forgotten. The most intelligent teachers in the schools realize this and regret it. In many cases a teacher knows that a pupil has not reached the stage of mental development and does not possess the stock of information which constitute fitness for college; but, under the present system, the teacher has no alternative; the accumulated pass marks are the *quid pro quo* of a certificate and the certificate must be forthcoming. Between the gross exaggeration of athletic struggles and the total absence of intellectual contests in the schools there is a wholesome mean. Consider the effect on a boy, on his interest in his work, on the quality of his work, of a contest of brains for which he must summon all his knowledge, all his ability, all his energy and enthusiasm. When he prepares for such a contest fairly, honestly confident that he is to have the same questions, under the same conditions, as every other fellow, knowing that to him and to all the boys of his school will be applied the same standard as to boys in New York and Chicago, rich and poor alike, influential and un-

known, there must be a wholesome enthusiasm, a strengthening of the will to succeed, that is good. Such a contest is furnished by examinations of a national character, and those who come through such a contest successfully would be proved, would have proved themselves and would be known, to be prepared for college.

G. J. PEIRCE,
Chairman.

MAJORITY REPORT.

The report of the Chairman explains the conditions under which this inquiry has been carried out. With the object sought, improvement in the quality of college matriculates, we are in entire sympathy. We dissent from the Chairman's indictment of the certificate system and from his conclusion that the system of admission on examination will guarantee better results.

In the education process the college undertakes to carry the student forward from the point where the secondary school leaves off. "The main duty of the high school is to train boys and girls to be capable and intelligent men and women." If the high school is efficient, if the pupil has responded to the stimulus given him and has successfully completed a well ordered course of study, the school has done all that can be reasonably demanded. The concern of the college is to find out whether the high school has accomplished this task. If so, this fact furnishes the best evidence obtainable of preparedness for college work.

Many persons hold that the completion of a four years' high school course is in itself sufficient evidence of preparation for college; at least, that the completion of such a course should entitle the student to admission to the college stage of education, and that it is the business of the college to give him this opportunity and trial. If unsuccessful he will fall out of the ranks just as boys and girls have fallen out all along the educational way; but between the completion of the high school stage and the beginning of the college stage artificial barriers should not be erected.

There are two main reasons why the college has hesitated to accept this principle. The first is, that through various causes high schools differ greatly in efficiency. The second is, that custom has sanctioned a low standard for high school graduation until it is well understood, in many places at least, that graduation from even a good high school does not guarantee either high success or capacity.

Yet the problem raised is not an easy one to solve. Dean Briggs of Harvard has noted the fact that many boys of college age are neither moral nor immoral, but of large capacity for vice or virtue. Likewise many boys of college age have not yet found themselves, and are neither good nor bad in terms of their high school course. They may have shown great capacity and little industry. Under the new conditions of

college life, with new incentives and ambitions, the one class may develop capacity, the other industry. Is the college, is Stanford University, clear in its own mind that it wishes to exclude both these classes of students? The competition for students, the feverish eagerness for large numbers, has certainly given high school principals good reason to infer that many colleges do not really wish to exclude any high school graduate. At Stanford, where the desire for large numbers has not obtained, the sentiment of the University in favor of a fairly wide open door has nevertheless made itself clearly evident.

In this way a certain number of unprepared students are admitted to the University, but with the University's consent and with full knowledge of the chances taken. Some high school principals undoubtedly abuse the confidence of the University and in one way or another connive to deceive the University as to the real qualifications of the candidates presented. But if all those who fail in their studies at the University, or who come near failing, are to be charged up against the high school, it will be found in the large majority of cases that no deceit has been practiced and that the high school principal has certified to the facts to the best of his knowledge and ability. Some students have failed because, the University choosing in certain cases to give the doubtful man the benefit of the doubt, they have not been able to stand the actual test of college work. Some have failed who succeeded well in the high school, but lacked the capacity or ambition to go farther. Some have failed because they could not readily adjust themselves to radically different conditions and became discouraged and befogged before they had time to get their bearings. Some have failed for lack of proper advice and direction at the critical time of college beginning. Some have failed because the instruction furnished by the University has not been adapted to the needs and capacities of freshmen. At the end of last semester 39 first year students were suspended. Of these 11 entered from other colleges (without advanced standing), 8 were special students, 1 entered on matriculation examinations passed at another university, and 1 on Normal School credentials. Of the 18 entered on recommendation from preparatory schools 7 were recommended to the University with qualifications which implied doubt as to their success in college. Three were given no comment by the principals. Eight had shown positive qualities in the high school which fairly argued success in the colleges. Possibly these commendatory reports were not in every case quite frank; in the main they were honest and sincere.

The accrediting system, as administered at Stanford, does not make the nonsensical demand that the principal assume the responsibility of deciding whether or not a candidate shall be admitted to the University. It reserves that responsibility to the University. The University asks for the full record of the candidate and for such discriminating comment as the principal is willing to make. The trend of the last few

years in favor of stricter standards, of greater discrimination among high school graduates, of closer scrutiny of credentials with more readiness to reject doubtful material or impose further tests, is doubtless a wholesome one. There is no reason to suppose that the great body of high school men may not be trusted to co-operate toward this end or that the University may not count on the co-operation of high school principals in maintaining as high a standard of preparation as the University is willing to stand for without flinching.

There is another advantage in the accrediting system. Properly administered it brings the college and the schools into close relations, promotes mutual understanding and respect, and enables the college to influence the school in large and wholesome ways. "It has been the making of secondary education in California," is the testimony of Professor Stringham of the State University. "I think I may safely say," says Professor D'Ooge of the University of Michigan, "that no experiment which our University has ever entered upon has so completely fulfilled our expectations. . . . There is the utmost harmony and co-operation between the schools and the universities in the matter of changing requirements or the raising of standards of admission." The high school product is admittedly disappointing to a degree because our whole lower education is still in an experimental stage. High standards are not fixed. What the high school needs, however, is not greater subserviency to the college, but a clearer understanding of its own purpose, more freedom in working out results, and above all better teachers. The hopeful part is that improvement has been steady. To this improvement the colleges have contributed largely, and may contribute even more by careful attention to the training of teachers and by the stimulus which comes from close acquaintance and co-operation. In this respect Stanford University has not exerted its full influence for the bettering of standards and the stimulation of high ideals. Further provision is needed to bring about that personal relationship and that mutual understanding which will enable the University to be of greatest service in the cause of secondary education. The channel for this co-operative effort is the accrediting system. Through it the high school is helped and encouraged to do its best work and the high school student is freed from the discouragement, worry, and uncertainty occasioned by arbitrary barriers to further study and progress.

Admitting the need of better teaching and better standards in the high school, we may now ask to what extent the entrance examination system promotes these ends. Under this system, do the high schools fulfill more efficiently their main duty of training boys and girls to be capable and intelligent men and women? Does the examination test separate the prepared students from the unprepared? Are those who secure admittance to college through examinations set by an outside examining body actually better prepared to take up college work than those admitted

on certificate? Harvard, Yale, Columbia, and Princeton admit students only on examination. Detailed comparisons are impossible, but have we any reason for supposing that the entering students in these colleges are better prepared or do better work than the students of Cornell, Chicago, Michigan, and Stanford who enter on the certificate plan? Stanford drops more students than Harvard. This merely means that Stanford has one way of dealing with poor students, Harvard another. As a matter of fact and experience examinations do, in a rough way, protect the college. Every college can take into its system a certain small percentage of unprepared students without lowering its standards. The only absolute test of fitness for college work is actual trial at college work. The examination system well administered insures that of those who enter, the percentage of unprepared will not rise to the danger point. Can more than this be claimed? Professor Thorndike of Columbia examined in detail the examination and college records of 253 students admitted to Columbia in 1901, 1902, and 1903 through the College Entrance Examination Board. The purpose was to see whether the entrance examination record was any reliable indication of what the student would do in college. His conclusions were directly contrary to such a hypothesis. "It is certain," he says, "that the traditional entrance examinations, even when as fully safeguarded as in the case of those given by the College Entrance Examination Board, do not prevent incompetence from getting into college; do not prevent students of excellent promise from being discouraged, improperly conditioned, or barred out altogether; do not measure fitness for college well enough to earn the respect of students or teachers, and do intolerable injustice to individuals. . . . Occasionally, a stupid boy who is misjudged by his teacher, will be admitted to college [on certificate], but the [examination] system is a paradise for stupid boys—with clever tutors. A sagacious tutor can get a hundred boys into college, not one of whom he would be willing to certify as fit to succeed there."

The educational value of examinations as a method of instruction is one thing. As a means of getting a subject well in hand, of co-ordinating the various parts of knowledge, examinations are a valuable element in the educational process. In the hands of a teacher who has many other ways of testing the pupil and who is not under temptation to unduly emphasize the value of a single examination or series of examinations, they will be extremely useful.

The set examination by an outside body is quite another matter. It does not result in the artless discovery of the mind of the pupil. So long as the passing of set examinations is something of an art, special training, with careful estimate of probable questions and presentable answers, will be resorted to. Special training directed to this end may be made to conceal ignorance and to secure for superficial knowledge a high rating in examination grades. But aside from the fact that

clever tutors and clever pupils are able to hoodwink fallible examiners, good teachers and good students, since examinations must be passed, are obliged to give attention to the passing of examinations. Good teaching will count, but somewhere in the school course teacher and student must turn aside from the main object to attend to the peculiarities of an impending examination. To quote Professor Thorndike again, "The main duty of the high schools is to train boys and girls to be capable and intelligent men and women. They and the public which supports them are willing to accept the responsibility of fitting for college the small minority of their students who will go on to an academic degree; but they ought not to be asked to fit students primarily for an arbitrary set of examinations. With such a task, they cannot be expected to resist the temptation to give up a large part of the last two years to specific coaching for the process of examination-taking. The proportion of college students who go on to professional courses is far greater than the proportion of high school students who go on to college course, yet the colleges would think it an insane arrangement if they had to fit students for elaborate and arbitrary examinations in physiology, chemistry, bacteriology, and the like, or in the psychology of religion, ecclesiastical history, church law, and Hebrew. The examination disease can be eliminated, and with an actual raising of standards, if a school's fitness to prepare for college is measured by the actual fitness of the student it prepares."

The number of poor students admitted to college through the examination system is not so important a consideration as the number of good students rejected, or discouraged, or diverted from the course of study which they ought to pursue. The strain of preparing for and staking all on a single outside examination is wasteful of energy and power which might be expended in more profitable ways. And along with the most careful preparation there goes an element of chance which tells against even the best students.

From the point of view of the high school the chief objection to the examination system is that it ignores the main purpose of the school. This purpose is to give boys and girls the best training that is adapted to their age and capacities and that grounds them best for the duties, responsibilities, and opportunities that are to follow. The whole educational process is regarded as one, and the aim is to bind it all together so that one stage naturally leads to the next throughout the whole journey from kindergarten to the University. The accrediting system establishes between high school and college the same system of promotion which prevails everywhere else in the educational process—from primary school to grammar school, from grade to grade in grammar school, from grammar to high school, from college to university. The examination system erects at one point an arbitrary barrier and demands that special attention and extra labor be devoted to removing this barrier.

If the waste, under the accrediting system, in eliminating unprepared material, can be measured accurately in dollars and cents, there is no reason to suppose the sum would be less under an examination system unless Stanford should give up the attempt to eliminate the unprepared—in which case the figures would be concealed. It is pertinent to remark that since the only absolute assurance of fitness for college work is actual trial of college work, the trying out process, to some extent at least, can not be avoided. This is a part of the duty of the University. No better way has been found, and, since the task can not be evaded, no expense is more legitimate.

The West, and particularly the immediate constituency of Stanford University, is thoroughly committed to the accrediting system. California high schools must arrange and carry on courses which will prepare for admission to the State University; and admission to the State University is through the accrediting system. Few high schools would be willing to shift the emphasis of their work in such a way as to prepare regularly in addition, for example, for the examinations of the College Entrance Examination Board. Few high school students would be willing to afford the extra time required to put their knowledge into the shape which would be necessary for successful presentation to the Examination Board. If Stanford University, in its particular environment, desires to keep the road open between the high school and the University, it can not afford to discard the accrediting system.

Both accrediting system and examination system reach approximate results only. The two systems, taking the country over, supplement each other. An examination system such as that administered by the College Entrance Examination Board, is a valuable ally to the accrediting system. It helps to fix standards and keep them steady. It provides for this University a way of testing doubtful or irregular material. But the main concern of Stanford University, in maintaining entrance standards, is to strengthen and guard the accrediting system through better acquaintance with the secondary schools, closer co-operation, and rigid insistence upon results in the preparatory work.

We recommend the following:

1. That the University apply for membership in the College Entrance Examination Board.
2. That a member of the Instructing Body be detailed for the half of each academic year to visit schools and confer with secondary teachers in the common interest of both schools and University.
3. That at the proper time steps be taken to form a Pacific Coast College Entrance Certificate Board similar in scope and operation to that of the New England College Entrance Certificate Board and similar organizations.

O. L. ELLIOTT,
G. H. MARX.

APPENDIX VI

THE LIBRARY.

The work of the Library during the first semester was carried on in the face of unusual difficulties. The reconstruction of the building mentioned in my former report was not completed until October and the new steel stacks were not completed until December. At that time a general shifting and rearrangement of the books was accomplished and the congestion in the main stack greatly relieved. The Hopkins Railway Library was removed from its rather exposed position on the main floor to one of greater security adjacent to the Economics Seminar on the second floor, and much needed space for readers in the Periodical department was gained by moving some of the long serial sets to the new steel cases in the basement immediately underneath. The new tier added to the main stack has been occupied by certain classes removed to it from the main floor. The accessions during the year amount to 14,561 volumes, as shown by the following table:

Number of volumes reported July 31, 1908.....	112,831
Added by purchase.....	10,105
Added by gifts and exchange.....	2,112
Added by binding.....	2,344
	<hr/>
Total volumes added.....	14,561
Less volumes withdrawn.....	163
	<hr/>
Net increase	14,398
Volumes in Library July 31, 1909.....	127,229

The most notable gift of the year is the "Collection de documents credits sur l'histoire de France," a copy of which was received through the courtesy of the Minister of Public Instruction of France and at the instance of M. H. Merou, Consul General of France at San Francisco. Mr. Charles G. Lathrop has continued his generous provision for the purchase of Californiana by the addition of \$150 to his previous gifts.

The funds available for the purchase of books were as follows:

General appropriation, subject to unit apportionment.....	\$15,000.00
Special appropriation for Law Department.....	3,500.00
Available from special appropriation for sets.....	8,000.00
Lathrop fund for Californiana.....	150.00
	<hr/>
	\$26,650.00

Following is a statement of the unit allotment :

Greek	5 units	\$ 477.50
Latin	5 "	477.50
Germanic Languages.....	7 "	668.50
Romanic Languages.....	7 "	668.50
Psychology	4 "	382.00
Philosophy	4 "	382.00
English Literature.....	8 "	764.00
English Philology.....	3 "	286.00
Education	4 "	382.00
History	12 "	1,146.00
Economics	8 "	764.00
Drawing	2 "	191.00
Mathematics	4 "	382.00
Applied Mathematics.....	1 "	95.50
Physics	6 "	573.00
Chemistry	6 "	573.00
General Botany	3 "	286.50
Systematic Botany	3 "	286.50
Physiology and Histology.....	5 "	477.50
Hygiene	2 "	191.00
Zoology	4 "	382.00
Entomology and Bionomics.....	2 "	191.00
Geology and Mining.....	7 "	668.50
Civil Engineering.....	4 "	382.00
Mechanical Engineering.....	4 "	382.00
Electrical Engineering.....	4 "	382.00
General Literature.....	15 "	1,439.00
Bibliography	3 "	286.50
Hopkins Railway Library.....	3 "	286.50
Memorial Church.....	1 "	95.50
Special :		
Applied Mathematics.....	1 "	95.50
Philosophy	2 "	191.00
English Literature.....	1 "	95.50
Economics	4 "	382.00
Archæology	1 "	95.50
General Philology.....	2 "	191.00
Total		157
		\$15,000.00

As noted in the report for last year a special appropriation of \$40,000 was made by the Trustees for the purchase of sets to be expended during a period of five years. One-fifth of this amount, \$8,000, has been available

for use this year. The list of sets to be bought, as compiled from the recommendations of the various departments, contains 384 titles. Some of these are very scarce and rarely come on to the market complete and in perfect condition. During the year satisfactory quotations were obtained upon 71 sets and orders were placed therefor. Of these, 66 were delivered before the close of the year and the remainder may be expected shortly.

The work of classifying and cataloguing has not only kept pace with the accessions, but much has been accomplished toward clearing away arrears. The preparation of cards for the Hopkins Railway Library is in progress, the Australian collection is being classified and catalogued, and similar work on the Hildebrand Library is nearly completed. At the request of the Department of Germanic Languages, the books of this last named collection no longer will be kept apart by themselves, but will be placed according to their classification in the main stack. There have been added to the catalogue 42,610 cards, making a total now contained therein of 230,313. The customary weekly lists of accessions have been posted and the monthly lists have been sent regularly to each department.

As a matter of convenience to those who have most frequent occasion to use them, many books are shelved at the departments and constitute the departmental libraries. Subjoined is a statement prepared by Mr. Goodwin showing the number now so placed:

Barbara Jordan library of birds.....	299 vols.
Botany	1,279 "
Chemistry	1,418 "
Civil Engineering	760 "
Education	6,869 "
Entomology	960 "
Jordan Library of Zoology	830 "
Mathematics	1,128 "
Mechanical Engineering	152 "
Mineralogy	159 "
Mining and Metallurgy.....	381 "
Physics	952 "
Physiology	1,176 "
Psychology	360 "
Romanic Languages	600 "
Zoology	600 "
<hr/>	
Total	17,974 "

The record of books used shows a total of 140,864 issued over the loan desk, an increase of 15,769 over the preceding year.

The Periodical department reports that 931 periodicals are being received regularly. Of these, 98 come as gifts, or by exchange, while 833 are paid for. Occasional additions to this list are necessary, particularly in the case of continuations to sets purchased from the special fund when such sets are not already on our subscription list. With few exceptions the periodicals are promptly bound as the volumes are completed. During the year the current work has been kept well in hand and much of the accumulation of past years has been disposed of.

Our binding record is as follows:

Serials bound	2,157 vols.
Books bound	284 “
Books rebound	116 “
<hr/>	
Total	2,557 “

There have been but few changes in the personnel of the staff. Mr. Sydney B. Mitchell, from McGill University Library, succeeded to the work of former associate-librarian, Melvin G. Dodge, in the ordering department. Miss Marjorie H. Little, a graduate of this University, was appointed assistant classifier. Miss Letitia Patterson, assistant in the Reference department, resigned in April, and, anticipating the return of Miss Green, reference librarian, from her two years' leave, the vacancy was left unfilled. However, in July, Miss Green's resignation was received, and while the writer cannot do so from his personal knowledge, he is glad to make this record of the high esteem in which her long and efficient services in and for the Library were held. Miss Helen Lathrop, acting reference librarian, has been appointed to the position, and Miss Maida Rossiter of the order department has been appointed assistant reference librarian. The vacancy in the order department thus created has been filled by the appointment of Miss Sylvia D. Stinson, a graduate of this University with the class of 1909. Mr. H. W. Campbell succeeds Miss Louise Marcus at the loan desk, and Mr. C. V. Park, also a graduate with the class of 1909, takes the place of two student assistants at the same station.

In closing it is a great pleasure to be able to commend most heartily the earnest and efficient work of the staff, every member of which has co-operated in a most harmonious spirit for the advancement and usefulness of the Library.

GEORGE T. CLARK,
Librarian.

APPENDIX VII

DEAN OF WOMEN.

The first year was necessarily devoted to making the acquaintance of the women of the University and to investigating the conditions under which they live.

Students living off the campus were my first consideration. The Palo Alto League of Stanford Women (now La Liana) was made a more vital organization, and all the women students in the town were gathered into membership. Meetings were held every second Saturday. Personal acquaintance led to a knowledge of social conditions in the boarding-houses and co-operative clubs. Where the environment proved undesirable and conditions could not be improved, houses were crossed off of the official list of boarding-places for the following semester, notwithstanding the fact that they had satisfied the requirements of the Board of Health. By the co-operation of the ladies of the faculty, living in Palo Alto, La Liana has been the means of bringing together the social life of the campus and the town, to the distinct advantage of both.

The "commuters," numbering about thirty-five, were organized as a luncheon club, and one of the rooms in the basement of the English Building was furnished for their use by the Young Women's Christian Association.

The women living on the campus are divided into two groups; those in organized clubs, such as Roble, Madrono, and the sororities, and those excluded from such life for lack of room. It is this second group, numbering not less than seventy-five, which presents the most perplexing problems, and on whose behalf, even more than for the boarders in Palo Alto, I asked the University for another dormitory upon the campus. It is my hope that all women not residing in their own homes may ultimately be housed in dormitories on the campus. The influence of the older women and the traditions of house rules are of inestimable value.

The Women's League was the organization that presented greatest possibilities for the future, but like the President's Conference, its method of representation was wrong. By a change in constitution it was made a true league of the women's activities, such as the Athletic Association, the Young Woman's Christian Association, Cap and Gown, the Masquers, the Schubert Club, and others; and its executive board became a strong, representative body. The President accepted the fifteen student members

of this executive board as his Conference of Young Women, and this completed the prestige of the new official body.

The position of the sorority houses on the campus gives the sororities an unavoidable prominence. Abolishing them as a basis of representation was a step in the right direction. The Pan-Hellenic Committee closed the year with a contract for the "rushing season" that was destined to keep their affairs as much as possible out of the public eye. On the whole the conduct of sorority life is most admirable. At no university in the country is the objectionable "rushing" carried on with more dignity.

According to my desire, I assisted Professor Anderson in a Shakespeare course throughout the year, teaching three hours a week. Eight hours a week were given to consultations in the office of the Dean of Women, and as much time as strength permitted was expended upon the social activities of the University.

I cannot conclude without bearing testimony to the high moral and social tone of the entire body of Stanford students.

EVELYN W. ALLAN,
Dean of Women.

APPENDIX VIII

THE MEMORIAL CHURCH.

Services of public worship have been held in the Chapel on Sunday and on Thursday of each week during the past academic year. The chaplain has officiated and preached at those services, except on alternate Sundays, when clergymen of various denominations have been invited to preach.

SPECIAL PREACHERS, 1908.

Sept. 13	Rev. William W. Rader.....	Presbyterian
Oct. 11	Bishop Nichols	Episcopalian
Oct. 18	Bishop Hughes	Methodist
Nov. 1	Rev. C. W. Merrill.....	Congregationalist
Nov. 15	Rev. E. L. Parsons.....	Episcopalian
Nov. 30	President Guth.....	Methodist
Dec. 13	Professor Kent.....	Congregationalist

1909.

Jan. 10	Rev. D. M. Brookman.....	Episcopalian
Jan. 24	Rev. Elwood Worcester.....	Episcopalian
Feb. 14	Rev. J. W. Crooker.....	Unitarian
Feb. 28	Rev. Matthew Hughes.....	Methodist
Mar. 14	Rabbi Kaplan	Hebrew
Mar. 21	Bishop Paddock	Episcopalian
April 4	Colonel Miles	Salvation Army
April 18	Rev. Hugh Walker.....	Presbyterian
May 2	Rev. J. A. McCartney.....	Presbyterian
May 16	Bishop Hughes	Methodist

TEACHING.

In addition to preaching, the Chaplain has given a course of lectures in the University on the life and teaching of Jesus Christ to a class numbering 85 students.

PHILANTHROPIC.

As President of the Social Service Club the Chaplain has organized monthly meetings of students, at which men engaged in social service work have spoken.

In addition to these monthly meetings, the Social Service idea was presented at assemblies of the whole University by

Dr. Wilfred Grenfell of Labrador,

Dr. Elwood Worcester of Boston,

Rev. Cecil Marrack of San Francisco.

The Chaplain has collected and dispensed to various charities the sum of three hundred dollars.

Sundry boxes of clothing have been given by students to the Nurses' Settlement, San Francisco, and to local needs.

The boys of the Columbia Park Boys' Club of San Francisco were invited to be the guests of the students at Encina Hall for one night, and to witness two football games.

PASTORAL.

The Chaplain has maintained pastoral relations with the students, thus:

Office hours, daily except Monday.

Visits to halls, fraternities, etc.

A personal letter to each freshman student.

About two hundred visits to sick students.

Attendance at meetings.

Entertaining.

THE CHOIR.

The Chapel services during the past year have been made reverent and inspiring with the help of the student choir, which has maintained a high average of excellence under the skillful hand of Mr. Godfrey Buehrer, the organist and choir master.

D. CHARLES GARDNER,
Chaplain.

APPENDIX IX

THE LELAND STANFORD JUNIOR UNIVERSITY MUSEUM.

The early part of the year was spent in the care and preservation of the material in storage and in the exhibition cases.

The first of the year the building was put in readiness for the plasterers and decorators to repair and retint the exhibition rooms. This took several weeks, so long, in fact, that it was April 1 before it was possible for the Curator and his assistants to begin the replacement of the exhibits in their proper cases.

It was found impossible to open on May 1st, as contemplated; the formal opening occurring May 8th. As a consequence, the arrangement in many rooms is but temporary, to be later gone over and rearranged.

The attendance has been exceptionally good.

The donations include a rich collection of stone implements presented by H. W. Seton-Karr of London, who had previously given several cases of similar material. The current numbers of the Daily "Palo Alto," the Stanford "Alumnus," and the "Stanford Press" were received and filed.

H. C. PETERSON,
Curator.

LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1910

TRUSTEES' SERIES

NO. 10

SEVENTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1910

STANFORD UNIVERSITY, CALIFORNIA

PUBLISHED BY THE UNIVERSITY

1910



LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

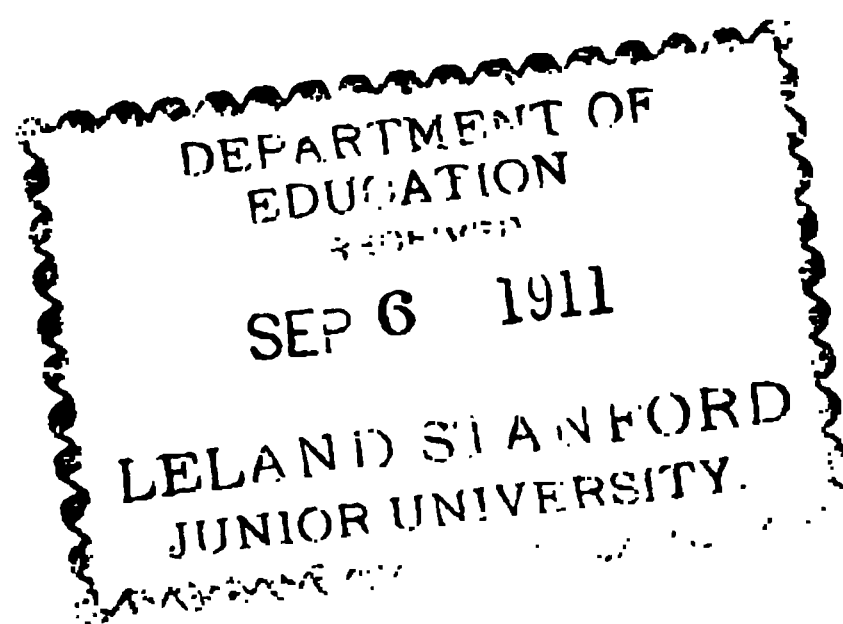
1910

TRUSTEES' SERIES

NO. 19

SEVENTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1910



STANFORD UNIVERSITY, CALIFORNIA
PUBLISHED BY THE UNIVERSITY

1910

Leland Stanford Junior University Publications

Trustees' Series

NO.	DATE
1. The Leland Stanford Junior University. A pamphlet of information.....	(No date)
2. Address of Jane Lathrop Stanford to the Board of Trustees	February 11, 1897
3. Address of Jane Lathrop Stanford to the Board of Trustees	June 1, 1897
4. Address of Jane Lathrop Stanford to the Board of Trustees	May 31, 1899
5. Address of Jane Lathrop Stanford to the Board of Trustees	October 3, 1902
6. Address on "The Right of Free Speech," by Jane Lathrop Stanford to the Board of Trustees.....	April 25, 1903
7. Petition filed in proceedings to establish and construe University Trusts.....	June 16, 1903
8. Decree in proceeding to establish and construe University Trusts	July 3, 1903
9. Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
10. Organization of the Faculty of the University.....	March 31, 1904
11. Report of the Organization Committee of the Trustees upon the Organization of the University Faculty	March 31, 1904
12. First Annual Report of the President.....	December 31, 1905
13. Second Annual Report of the President.....	April 30, 1906
14. Third Annual Report of the President.....	December 31, 1906
15. Fourth Annual Report of the President.....	December 31, 1907
16. Trustees' Manual	November 1, 1908
17. Fifth Annual Report of the President.....	December 31, 1908
18. Sixth Annual Report of the President.....	December 31, 1909
19. Seventh Annual Report of the President.....	December 31, 1910

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REPORT OF THE PRESIDENT

*To the Honorable Board of Trustees,
Leland Stanford Junior University.*

GENTLEMEN :

I submit herewith my report as President of the University for the academic year ending July 31, 1910.

The work of the year has in all respects been very satisfactory. No event of striking importance has occurred, but in all departments thorough work has been done and the attitude of the student body has been excellent.

The only important building additions for the year have been the construction of laboratories for the three new divisions of Medicine to be located at the University. The **Reconstruction of Buildings** laboratories for Anatomy were completed during the course of the past year, and those for Bacteriology and Pharmacology are approaching completion, the work of these two divisions beginning with the current academic year.

The total attendance of students for the year has been 1760 as against 1681 for the preceding year. Of these students 157 were in graduate standing, 38 of them being candidates for advanced degrees. By major subjects these students may be classified as follows:

ATTENDANCE FOR 1909-10 BY MAJOR SUBJECT

	Graduate	Under- Graduate	Special	Total
Greek	3	8	—	11
Latin	12	28	—	40
Germanic Languages	9	85	—	94
Romanic Languages	3	37	—	40
English	17	131	1	149
Psychology	—	3	—	3
Philosophy	1	4	—	5

Education	8	31	—	39
History	16	134	2	152
Economics and Social Science.....	13	132	12	157
Law	26	*36	24	86
Pre-Legal Course	—	185	4	189
Graphic Art	2	43	2	47
Mathematics	2	20	—	22
Physics	5	8	—	13
Chemistry	5	70	4	79
Botany	4	25	—	29
Physiology and Histology	4	63	3	70
Zoology	5	18	1	24
Entomology	2	10	1	13
Geology and Mining	6	89	5	100
Civil Engineering	2	178	16	196
Mechanical Engineering	2	60	7	69
Electrical Engineering	1	100	7	108
Medicine..	9	†5	†1	15

The great majority of these students are as usual from the state of California, but forty other states and territories are represented and 33 students are enrolled from foreign countries. The distribution of the students by place of residence is as follows:

California	1364	Texas	3
Washington	42	Wyoming	3
Oregon	30	Kentucky	2
Iowa	25	Maine	2
New York	25	Michigan	2
Illinois	25	North Dakota	2
Colorado	19	Tennessee	2
Utah	17	Vermont	2
Montana	16	Alabama	1
Hawaii	14	Alaska	1
Ohio	12	Arkansas	1
Indiana	11	Connecticut	1
Kansas	11	Maryland	1
Pennsylvania	10	Mississippi	1
Arizona	9	Rhode Island	1
Missouri	8	Japan	9
Idaho	7	Australia	5
Nevada	7	Canada	4
Massachusetts	5	India	3
Minnesota	5	Mexico	3
Nebraska	4	China	2
New Mexico	4	Holland	2
Wisconsin	4	Austro-Hungary	1
District of Columbia.....	3	Chile	1
New Jersey	3	England	1
Oklahoma	3	Ireland	1
South Dakota	3	Switzerland	1

*Seniors in Pre-Legal Course counted as Law Majors.

†Also registered as Physiology Majors.

Heretofore little or no serious difficulty has been experienced in the administration of the 500-limit for women students. A considerable number of students in excess of the maximum have for a year or two perfected applications for admission, but the number of vacancies in the list from one cause or another have been sufficient to leave places for all young women who have appeared on registration day. The conditions during the past summer and at the registration in the fall of 1910 changed this and present a problem which will doubtless increase rather than diminish in difficulty in the future. Few vacancies occurred among those seeking admission and at registration day a considerable number of young women in excess of those who could be provided for were in attendance and were forced to make arrangements elsewhere. This difficulty can be temporarily overcome by offering less encouragement to young women to seek admission to our freshman class, but it is an open question whether it would not be better to eliminate the young women from this class, requiring them to present sophomore standing on entrance. The number of freshman women that can be received at present is small and must decrease. This matter should receive careful consideration.

The University has never made a charge for tuition to students in non-professional courses. At first no general or incidental fee, such as is customary even in the state universities, was charged at Stanford University, but during the period of litigation such a fee was imposed in the sum of \$10 per semester for regular students and \$15 per semester for special students in undergraduate standing. This fee was waived in the case of students residents of California after the action of the Legislature in granting the University exemption from taxation on certain portions of its property, but remained in force in the case of students from outside the state. By action of the Board of Trustees taken on April 29, 1910, an incidental fee of \$15 per semester has been established, chargeable against all undergraduate students except those paying tuition fees in professional

courses, this fee taking effect at the beginning of the academic year 1910-11 and the income from it being devoted to expenses of administration and maintenance affecting the general student body, as heating, lighting, janitor service, repairs to buildings, furniture and apparatus, and like expenses.

On February 25, 1910, the University received from Mr. and Mrs. F. W. West, of Seattle, Washington, a sum of money for the endowment of a lectureship in memory of their son, Raymond F. West, who met his death by drowning while a student in the University. The terms of this gift are as follows and may be here recorded:

**West
Memorial
Lectures**

In memory of our beloved son, Raymond Frederic West, a student in Leland Stanford Junior University, who was drowned in Eel River, in California, on January 18, 1906, before the completion of his college course, we wish to present to the trustees and authorities of the Leland Stanford Junior University, at Palo Alto, California, the honored Alma Mater of our son, the sum of ten thousand dollars (\$10,000), to be held as a fund in perpetual trust, for the establishment of a lectureship on a plan similar to the Duddleian Lectures and the Ingersoll Lectures at Harvard University.

By this plan, in each collegiate year, or on each alternate year, at the discretion of the Board of Trustees, from one to three lectures shall be given on some phase of this subject: "Immortality, Human Conduct, and Human Destiny."

Such lectures shall not form a part of the usual college or university course, nor shall they be delivered by any professor or instructor in active service in the institution. Such lecturer may be a clergyman or a layman, a member of any ecclesiastical organization, or of none, but he should be a man of the highest personal character and of superior intellectual endowment. He shall be chosen by the Faculty and the Board of Trustees of said University in such manner as the Board of Trustees may determine, but the appointment in any case shall be made at least six months before the delivery of said lectures.

The above sum is to be safely invested, and the interest thereof is to be divided, at the discretion of the Board of Trustees, into two parts, the one an honorarium to the lecturer, the other for the publication of the said lectures, or the gratuitous distribution of a number of copies of the same if published by the author.

The manuscript of the course of lectures shall become the property of the University and shall be published by the University unless some other form of publication is more acceptable.

The course of lectures shall be known as the "Raymond F. West Memorial Lectures on Immortality, Human Conduct, and Human Destiny."

F. W. WEST,
MARY B. WEST.

Seattle, Washington,
January 18, 1910.

The first series of lectures under this foundation will be given in February, 1911, by the Rev. Charles E. Jefferson, pastor of the Broadway Tabernacle, New York City.

The University Faculty has sustained a heavy loss in the untimely death of two of its members, Professors Bergström and Matzke, the death of the latter occurring near the beginning of the academic year 1910-11. Professor Matzke had been asked to represent Stanford University at the inauguration of the Mexican National University on September 22, 1910. While in the City of Mexico for this purpose, he was attacked by cerebral hemorrhage and died on September 18th. The University is under obligation to the Government of Mexico for its generous and helpful assistance in all matters pertaining to Dr. Matzke's illness and death and for the return of his body to Palo Alto. Dr. Matzke had held the professorship of Romanic Languages in the University for eighteen years. He was a thorough and productive scholar, a successful teacher, and in all his relations an industrious, devoted and thoroughly sincere man, one of those who have done most towards the formation of the ideals of the University. The following is a brief sketch of his life:

John Ernst Matzke was born in Breslau, Germany, October 20, 1862. He was educated at Hope College, Michigan, receiving there the degree of A. B. in 1882, and at Johns Hopkins University, where he received the degree of Ph. D. in 1888. He married Edith Virginia Hedges, June 26, 1895, who with their two sons survives him. Dr. Matzke was professor of French in Bowdoin College, 1889-90; professor of Romanic Languages at Indiana University, 1890-1; associate in Romanic Languages in Johns Hopkins University, 1891-3. He has been at the head of his department in the University since 1893. Dr. Matzke was advisory editor of *Modern Philology* and a member of the Modern Language and American Philological Associations. He was author of various textbooks on French and Spanish and a contributor to philological journals. His death occurred in the City of Mexico on September 18, 1910.

Professor Bergström's death occurred in February, after a relatively brief illness caused by tumor of the brain. He had been but one year at the University, but in that brief time he made a deep impression as a learned scholar, a faithful teacher and a man of rich and noble personality. The following is a brief sketch of his life:

John Andrew Bergström was born on October 28, 1867, at Bildsberg, Sweden. He was brought to this country as a child and educated at East Greenwich (Connecticut) Academy and Wesleyan University, receiving his A. B. degree in 1890, and at Clark University, where he received the degree of Ph. D. in 1894. He was assistant professor of Psychology and Pedagogy in Indiana University 1894-96, associate professor, 1896-02, professor, 1902-08. He began his work at Stanford University as professor of Education in January, 1909. His death occurred at Palo Alto, February 28, 1910. He is survived by his widow and one son.

In this academic year the property of the Cooper Medical College, including the Lane Hospital, Lane Library, and Cooper Hall, was deeded to the Trustees of Stanford University on condition that the University undertake instruction in Medicine. To this end formal work in Medicine was begun in August, 1909, in rooms composing part of the annex to the Leland Stanford Junior Museum. Only first year students were admitted, these corresponding to fourth year students in the University who had made Physiology their major subject. In other words, three years of collegiate work is required for admission to the department of Medicine, this including not less than two years work in physiology and two in chemistry, besides biology, physics, Latin and one modern language. Further details regarding the development of the work in Medicine will be found in the report of the Medical Department.

The following changes in the University faculty took place during the year:

Faculty Changes	In Greek, Associate Professor Rolfe retired at the close of the year. Assistant Professor Ernest Whitney Martin, returning from two years' leave of absence at the University of Nevada, has been transferred from the department of Latin to that of Greek.
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In Latin, Professor Fairclough has been granted sabbatical

leave for the year 1910-11 and will fill a professorship in the American School of Classical Studies at Rome. Assistant Professor Elmore has been promoted to the rank of associate professor.

In German, Assistant Professor Danton has resigned to accept a professorship in Butler College at Indianapolis.

In Romanic Languages, Assistant Professor Searles has been made associate professor. Instructors Atkin and Pellissier have resigned to pursue advanced studies at Harvard University. Dr. Aurelio Macedonio Espinosa has been added to the staff of the department as assistant professor in Spanish. Dr. Espinosa is a graduate of the University of Colorado and also of the University of Chicago, receiving the Doctor's degree in the latter institution.

In English Literature and Rhetoric, Everett W. Smith, Stanford 1899, and Edith R. Mirrieles, Stanford 1907, have been added to the department as instructors.

At the close of the year Professor Melville Best Anderson, who had been professor of English Literature since the opening of the University, retired under the provisions of the Carnegie Foundation for the Advancement of Teaching, to devote himself to the study of Dant . By action of the Board of Trustees taken on February 25, 1910, Professor Anderson was made professor emeritus. I may here repeat certain words in appreciation of his work made in my recommendation of this action:

In my judgment, as a teacher of literature, Professor Anderson has no equal in this country at the present time. He has had a wonderful power of bringing before students the actual nature of literary work which they have to study. On the one hand, he has not dissected such work, spending his time on the little details of what this or that sentence means, or when this or that folio was written; and, on the other hand, he has never made himself noted, as many professors have done, by saying beautiful things about authors, the inward meaning of their deliverances, and like things, which direct the attention of the student to the grace of the teacher himself, without bringing him any closer to the subject studied. Professor Anderson has all these years brought students into close, direct, and intimate relation with Shakespeare, Milton, Browning, Tennyson and Dante, and has left with them a knowledge of the thing studied—a taste for it, if it is to their taste; an understanding of it, whatever it may be—such as I have never known any other professor of English Literature to give.

In Education, the death of Dr. Bergström has been mentioned. His place was temporarily filled by the appointment of Mr. Rufus C. Bentley for the second semester. Mr. Bentley becomes a regular member of the department as assistant professor. He is a graduate, A. B. and A. M., of the University of Nebraska, and comes to us from Clark College where he held the position of Dean. There is added to the department for the academic year 1910-11 Dr. Lewis M. Terman as assistant professor. Dr. Terman is a graduate, A. B. of Indiana University, and Ph. D. of Clark University. He comes to us from the State Normal School at Los Angeles.

In History, Assistant Professor Cannon has been absent during the year on sabbatical leave. His place has been filled by Dr. Sedley L. Ware as instructor.

In Economics and Social Science, Professor Allyn A. Young will be absent for the academic year 1910-11, on leave, filling a lectureship at Harvard University. Assistant Professor Millis resumed his work with the second semester after an absence of a year and a half in the service of the U. S. Immigration Bureau. He has been promoted to the rank of associate professor. A similar promotion was given to Dr. James M. Motley, but he resigned at the close of the year to accept a position at Brown University. Dr. Ira B. Cross has been made instructor in the department.

In Law, Professor Huberich has spent the year at the University of Wisconsin under an exchange arrangement with Prof. Howard L. Smith of that institution, who has filled his place at Stanford.

In Applied Mathematics, Assistant Professor Manning has been absent at the University of Illinois in exchange with Mr. E. W. Ponzer of that institution. For the coming academic year Dr. Manning will be absent on sabbatical leave and Mr. Ponzer has been added to the staff of the department as assistant professor. Instructor Jesse D. Suter has resigned and Mr. George F. McEwen, Stanford 1908, has been made instructor.

In Physics, Assistant Professor Brown will be absent during the academic year 1910-11 on sabbatical leave. Mr. Percy A. Ross has been made instructor in the department during his absence.

In Chemistry, Associate Professor Swain has been absent during the year on sabbatical leave.

In Botany, Associate Professor Peirce has been promoted to a professorship.

In Hygiene, Dr. Snow has been absent during the year as secretary of the State Board of Health. His leave has been extended to cover the year 1910-11, the second half of which he will spend on sabbatical leave in study abroad. Instructor Long has been promoted to the rank of assistant professor. Miss Florence Bolton has been absent on leave and Dr. Clelia D. Mosher has been appointed acting director of the women's gymnasium and medical adviser of women.

In Zoology, Associate Professor Price has been promoted to a professorship.

In Geology and Mining, Professors John F. Newsom and James F. McClelland have resigned, the latter to accept a position at Yale, the former to enter practical work. Mr. David M. Folsom, Stanford 1902, as assistant professor of Mining, and Mr. Galen H. Clevenger, Columbia 1903, as assistant professor of Metallurgy, were added to the staff of the department. Instructor Luther W. Bahney has been promoted to the rank of assistant professor, and Assistant Professor Austin F. Rogers to the rank of associate professor of Mineralogy.

In Mechanical Engineering, Professor Durand was absent during the latter half of the year and Associate Professor Eckart during the whole of the year, the latter on sabbatical leave.

In Electrical Engineering, Instructor Hillebrand has been promoted to the rank of assistant professor.

In Medicine, Dr. Arthur W. Meyer has served during the year as professor of Human Anatomy, developing the first year's work in the new department. For the academic year 1910-11 Dr. Hans Zinsser of Columbia University, as associate professor, and Dr. Albert C. Crawford, as professor, will organize the two new divisions in Medicine of Bacteriology and Pharmacology.

In the President's Office, Secretary George A. Clark was absent during the first semester engaged in an investigation of the fur seal herd of Bering Sea for the Department of Commerce and Labor. Mr. John Parks Hemphill, Stanford 1909, filled his place.

The following is a list of the publications of individual members of the University Faculty during the year:

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- ADAMS, EPHRAIM DOUGLASS: British interests and activities in Texas, 1838-46: Baltimore, the Johns Hopkins Press, 1910. The Albert Shaw lectures on diplomatic history, 1909.—A century of empire, 1801-1900, by Rt. Hon. Sir Herbert Maxwell (review): *American Historical Review*, 15; April 1910.—England and the French Revolution, 1789-97, by William Thomas Laprade (review): *ibid.*, 15; July 1910.—Historical contacts in the high school: *Sierra Educational Review*, 6; April 1910.—Rugby as a substitute: *Kansas Graduates' Magazine*; April 1910.
- ALDEN, RAYMOND MACDONALD: Academic ceremonial: *Independent*, 67; November 1909.—The decline of poetic justice: *Atlantic Monthly*, 105; February 1910.—Rules of the Bodleian, by Lector [pseud.]: *Nation*, 89; November 1909.—Beaumont's Knight of the burning pestle and A king and no king; ed. by R. M. Alden (Belles-lettres series, Section 3, English drama): Boston, Heath, 1910.—Thoreau's Walden; ed. by R. M. Alden. (Longmans English Classics) New York, Longmans, Green & Co., 1910.
- ANDERSON, MELVILLE BEST: Dante in English literature: *Dial*, 48; January 1910.
- BAHNEY, LUTHER WILLIAM: An adjustable pryometer stand: *American Institute of Mining Engineers, Bulletin*, 37.
- BATEMAN, WILLIAM GEORGE (with Swain, R. E.): The toxicity of thallium salts, first paper: *Journal of Biological Chemistry*, 7; January 1910.
- BENTLEY, RUFUS CLARENCE: How shall the American college persist: *Collegiate Alumnae Magazine*, Ser. 3; April 1910.
- BINGHAM, JOSEPH W.: Estates of decedents: *American law and procedure*, 6.—Rights in land of another: *ibid.*, 4.
- BLICHFELDT, HANS FREDERIK: Theorems on simple groups: *American Mathematical Society, Transactions*, 11; January 1910.
- BOLTON, HERBERT EUGENE: Los archivos de Mexico. . . . Traducido con algunos anexos, por el socio lic. José Romero: *Boletín de la Sociedad Mexicana de Geografía y Estadística*, Quinta Epoca, Tomo III, Numero 5. Mexico, 1909.—Concluye, *ibid.* Numero 6 (1909).—Articles on Indian tribes and early missions of Texas: Handbook of American Indians North of Mexico, Part II: *Bureau of American Ethnology, Bulletin*, No. 30.—Historia de Nuevo León con noticias sobre Coahuila, Ténas y Nuevo México. Por el Capitan Alonzo de León, un autor anónimo, y el General Fernando Sanchez de Zamora (review): *American Historical Review*, 15; July 1910.—Portola's letters found: Translation of original letters relating to the Spanish occupation of

- California, discovered by the translator in the Mexican archives: *San Francisco Call*, Sunday, October 17, 1909.
- BRANNER, JOHN CASPER: Chamberlain & Salisbury: College text-book of geology (review): *Science*, 31; January 1910.—Diamond bearing highlands of Bahia: New York, 1909.—Earthquakes in Brazil: *Journal of Geology*, 18; May-June 1910.—Education for economic efficiency: Address before the conference of education in the South: *Proceedings of the 13th Convention for Education in the South*, Washington, 1910.—Geologic work of ants in tropical America: *Bulletin of the Geological Society of America*, 21; 1910.—The luminosity of termites: *Science*, n. s. 31; January 1910.—Slates of Arkansas, by A. H. Purdue, with a bibliography of the geology of Arkansas by J. C. Branner: *Geological Survey of Arkansas*, 1910.—Machado's Los temblores en Chile (review): *Journal of Geology*, 17; September-October 1909.
- CAMPBELL, DOUGLAS HOUGHTON: The embryo and young sporophyte of Angiopteris and Kaulfussia: *Annales du Jardin Botanique de Buitenzorg*, Ser. 2, Suppl. 3; Leiden, 1910.—The embryosac of Pandanus coronatus: *Torrey Botanical Club, Bulletin*, 37; June 1910.
- CANNON, HENRY LEWIN: Character and antecedents of the charter of liberties of Henry I: *American Historical Review*, 15; October 1909.—Reading references for English history: New York, Ginn, 1910.
- CATHCART, ARTHUR MARTIN: Damages: *American Law and Procedure*, 10.—Public service corporations and carriers: *ibid.*, 8.
- CHARTERS, SAMUEL BARCLAY, JR. (with Hillebrand, W. A.): Some phases of transformer regulation: *American Institute of Electrical Engineers*, 29; January 1910.
- CLARK, GEORGE ARCHIBALD: The vocabulary of business correspondence: *Phonographic Magazine*, 24; May 1910.
- COOPER, WILLIAM ALPHA: Alt's edition of Faust (review): *Nation*, 91; August 1910.—The Goethe Society's popular edition of Goethe (review): *ibid.*, 90; February 1910.—Graf's edition of Faust (review): *ibid.*, 90; January 1910.—Graf's Goethe über seine Dichtungen (review): *ibid.*, 89; November 1909.—Morris's edition of Der junge Goethe (review): *ibid.*, 90; January 1910.—Notes on the Goldene Klassiker edition of Goethe: *ibid.*, 90; April 1910.—Notes on the Weimar edition of Goethe: *ibid.*, 90; February 1910.—The revised edition of Biederman's Goethes Gespräche (review): *ibid.*, 90; May 1910.—Two new volumes of the Weimar Goethe: *ibid.*, 90; June 1910.—Volumes I and II of the revised Goethes Gespräche (review): *Modern Language Notes*, 25; June 1910.—A Paracelsian passage in Goethe's Ephemerides: *ibid.*, 25; June 1910.
- CROSS, IRA B: Chinese immigration, by Mary Roberts Coolidge (review): *Economic Bulletin*, 3; June 1910.—Early labor day parades in the metropolis: *San Francisco Labor Clarion*, Sept. 2, 1910.—The economic causes of great fortunes, by Anna Youngmen (review): *Annals of*

- the American Academy of Political and Social Science*, 35; 1910.—Adventures in socialism, by Alex. Cullen (review): *ibid.*, 36; 1910.—History of great American fortunes, vol. I, by Gustavus Meyers (review): *ibid.*, 35; 1910.—Men vs. the man, by R. R. La Monte and H. L. Mencken (review): *ibid.*, 36; 1910.—Socialism in local government, by W. G. Towler (review): *ibid.*, 34, 1909.
- CUBBERLEY, ELLWOOD PATTERSON: Changing conceptions of education: Boston, Houghton Mifflin Co. [c1909] (Riverside educational monographs, edited by H. Suzzalo).—Consolidation of schools as a means of securing better school buildings: California Superintendent of public instruction *Biennial report*, 23; pt. 2, 1907-08.
- DANTON, GEORGE HENRY: The date of the scene of Tieck's Sternbald: *Modern Language Notes*, 25; January 1910.—On Chria in Gottsched: *Zeitschrift für deutsche wortforschung*, 11; December 1909.—Palaestra LXXXIV: *Modern Language Notes*, 25; April 1910.—The romantic school in Germany. Review of Wernaer: Romanticism and the romantic school in Germany, *ibid.*, 25; April 1910.
- DURAND, WILLIAM FREDERICK (*with* Ryan, H. J. and Ensign, O. H.): Preliminary report of consulting board of engineers of the bureau of Los Angeles aqueduct power. Los Angeles, February 12, 1910.
- ECKART, WILLIAM RANKINE: The application of the pilot tube to the testing of impulse water-wheels: *Proceedings of Institute of Mechanical Engineers of London*, January-February 1910. Also published under the title "Impulse water-wheels and the pilot tube": *Engineering* (London), 89; January 1910.
- ELMORE, JEFFERSON: Book of Latin prose composition, Teachers' edition: Boston; Sanborn & Co., 1910.—A real basis for Latin composition: *School Review*, 18; March 1910.
- FAIRCLOUGH, HENRY RUSHTON, ed: Plautus, Titus Maccius: Trinummus: with introduction and notes by H. R. Fairclough (Macmillan's Latin classics): Macmillan, 1909.
- FISH, JOHN CHARLES LOUNSBURY: Coordinates of elementary surveying. Stanford University, 1910.
- FISHER, WALTER KENRICK: New genera of starfishes: *Annals and Magazine of Natural History*, ser. 8, v. 5, February 1910.—New pterasteridæ from the North Pacific: *ibid.*, February 1910.—New starfishes from the North Pacific: I, Phanerozonia; II, Spinulosa: *Zoologischer Anzeiger*, 35; March 1910.
- HEATH, HAROLD: The association of a fish with a hydroid: *Biological Bulletin*, 19; July 1910.—A new genus of parasitic gastropods: *ibid.*, 18; February 1910.—Pelagosphaera, a larval gephyraen: *ibid.*, 18; April 1910.
- HEMPL, GEORGE: The linguistic and ethnographic status of the Burgundians: *American Philological Association, Transactions*, 39; 1908.

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HOHFELD, WESLEY NEWCOMB: The individual liability of stockholders and the conflict of laws, Part II.: *Columbia Law Review*, 10; April 1910.—Same, Part III.: *ibid.*, 10; June 1910.

HUSTON, CHARLES ANDREWS: Agency: *American Law and Procedure*, vol. I.

JORDAN, DAVID STARR: The care and culture of freshmen: *North American Review*, 191; April 1910.—(*With* Richardson, R. E.) Catalogue of the fishes of Formosa: *Carnegie Museum, Memoirs*, 4; 1909.—(*With* Richardson, R. E.) Check-list of the species of fishes known from the Philippine Archipelago: Manila, 1910 (Philippine Islands, *Bureau of Science, Publication No. 1*, 1910).—(*With* Thompson, W. F.) Description of a new species of deep-water sculpin (*Trigloporus ontariensis*) from Lake Ontario, with notes on related species: *U. S. National Museum, Proceedings*, 38; April 1910.—(*With* Snyder, J. O.). Description of a new whitefish (*Coregonus oregonus*) from McKenzie river, Oregon; *ibid.*, 36; May 1909.—A half century of Darwinism: *Science*, 30; October 1909.—Ichthyology: *American Naturalist*, 43; September 1909.—Kakichi Mitsukuri: *Science*, 30; November 1909.—Nation's need of men; San Francisco, Whitaker & Ray, 1910.—Notes on ichthyology: *American Naturalist*, 44; March 1910.—Permanent wealth of the nation: *Independent*, 68; June 1910.—Religion of a sensible American: Boston, American Unitarian Association, 1909.—(*With* Richardson, R. E.) A review of the serranidae or sea bass of Japan: *U. S. National Museum, Proceedings*, 37; January 1910.—Scholar in the community: San Francisco, Whitaker & Ray, 1910.—The Story of Matka; a tale of the Mist Islands: San Francisco, Whitaker & Ray, 1910.—Strength of Being Clean: Boston, American Unitarian Association, 1909.—(*With* others) A system of uniform and common international regulations for the protection and preservation of the food fishes in international boundary waters of the U. S. and Canada; prepared by International Fisheries Commission, [1909].—Universität und "College" in Amerika: *Internationale Wochenschrift für Wissenschaft Kunst u. Technik*, 3; September 1909.—Work of the international fisheries commission of Great Britain and the United States: Paper presented before the Fourth International Fishery Congress, Washington, September 22-26, 1908: *U. S. Bureau of fisheries, Bulletin*, 28; January 1910.

KELLOGG, VERNON LYMAN: Celebrating Darwin's greatness and Darwinism's weakness: *American Naturalist*, 44; June 1910.—Ernst Haeckel: Darwinist, Monist: *Popular Science Monthly*, 76; February 1910.—In and out of Florence; a new introduction to a well known city, by Max Vernon [pseud.], with many illustrations from drawings by

- Maud Lanktree and from photographs: New York, Holt, 1910.—Insect breeding: *American Breeders' Magazine*, 1; June 1910.—(With Paine, J. H.) Mallophaga from the birds of Laysan Island: *Entomological News*, 21; March 1910.—Mallophaga of the Hoatzin: *Zoologica*, 1; January 1910.—Mallophagan parasites from the California condor: *Science*, n. s. 31; January 1910.—The mechanics of biology: *ibid.*, 30; November 1909.—Luigi Bertelli's Prince and his ants; translated from the fourth Italian edition by S. F. Woodruff; edited by V. L. Kellogg: New York, Holt, 1910.
- KREHBIEL, EDWARD BENJAMIN: The interdict, its history and its operation: Washington, *American Historical Association*, 1909. Prize essay of the American Historical Association).—La Société Française au Temps de Philippe-Auguste, par Achille Lucharie (review): *American Historical Review*, 15; January 1910.
- MCCRACKEN, MARY ISABEL: Heredity of the race characters univoltinism and bivoltinism in the silkworm (*Bombyx mori*), a case of non-Mendelian inheritance: *Journal of Experimental Zoology*, 7; November 1909.—The manifestation of the flight function in the silkworm (*Bombyx mori*): *Biological Bulletin*, 18; February 1910.
- MCEWEN, GEORGE FRANCIS: Preliminary report on the hydrographic work carried on by the Marine biological station of San Diego: Berkeley, The University Press, 1910: *University of California Publications in Zoology*, 6; No. 9.
- MARTIN, LILLIEN JANE: Zur lehre von den bewegungsvorstellungen: *Zeitschrift für Psychologie*, 56; 1910.—Also in Bericht über den IV Kongress für Experimentelle Psychologie in Innsbruck, April 1910.
- MARX, GUIDO HUGO: Attendance of students at foreign universities: *Science*, 31; April 1910.—(With Smith, A. W.) Machine Design, third edition; New York, Wiley, 1909.—The problem of the assistant professor: *Proceedings of Association of American Universities*; eleventh annual conference, 1910; also in *Science*, 31; March 18, 25; April 1910.—Some trends in higher education: *California Weekly*, 2; June 1910.—With chart and compass; a commencement address: *Palo Altan*, July 1, 1910.
- MILLIS, H. A.: Chinese immigration, by Mary Roberts Coolidge (review): *American Historical Review*, 15; July 1910.
- MIRRIELES, EDITH: Where the color of life is red: *Sunset*, 23; October 1909.—Justice in Hylo: *Pacific Monthly*, 22; July 1909.—Pay Dirt: *ibid.*, . . . 1909.—The Hate: *ibid.*, 24; July 1910.
- NEWCOMER, ALPHONSO GERALD: On teaching literature: *Dial*, 47; October 1909.—Twelve centuries of English poetry and prose, selected and edited by A. G. Newcomer . . . and A. E. Andrews: Chicago, Scott, Foresman, 1910.—Macaulay's Essays on Clive & Hastings; edited for school use by A. G. Newcomer (Lake English classics): Chicago, Scott, Foresman, 1909.

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- RICHARDSON, ROBERT EARL: (see under David Starr Jordan).
- ROGERS, AUSTIN F.: Anhydrite and associated minerals from the salt mines of Central Kansas: *American Journal of Science*, 29; March 1910.—The study of rocks without the use of the microscope: *Science*, n. s. 31, 1910.—Notes on some pseudomorphs, petrifications, and alterations: *American Philosophical Society, Proceedings*, 49; 1910.—Minerals from the pegmatite veins of Rincon, San Diego county, California: *School of Mines Quarterly*, 31; 1910.
- RYAN, HARRIS JOSEPH: Contribution to the discussion of Corona phenomena in air and oil and their relation to transformer design: *Transactions of the American Institute of Electrical Engineers*, 28, pt. 2; 1909.—Contributions to the discussion of practical method of protecting insulators: *ibid.*, 29; August 1910.—(With Ensign, O. H. and Durand, W. F.) Preliminary report of consulting board of engineers of the Bureau of Los Angeles aqueduct power: Los Angeles, February 1910.
- SHOW, ARLEY BARTLOW: The conflict of religions in the Early Roman Empire, by T. R. Glover (review): *American Historical Review*, 15; January 1910.—The movement for reform in the teaching of religion in the public schools of Saxony: *U. S. Bureau of Education, Bulletin*, No. 1, 1910.
- SKINNER, MACY MILLMORE: Cribbing and the use of printed translations: *School Review*, 18; September 1910.—Der roman, geschichte, theorie und technik des romans und der erzählenden dichtung von Heinrich Keiter und Tony Kellen (review): *Modern Language Notes*, 24; December 1909.—Some practical hints for teaching students how to read German: *School Review*, 17; October 1909.—Vacation loan libraries for students of German: *Monatshefte für Deutsche Sprache und Pädagogik*, vol. 11, No. 4; 1910.
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- SLONAKER, JAMES ROLLIN: Eigenmann's Cave vertebrates of America: (review) *Science*, n. s. 30; December 1909.
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- SWAIN, ROBERT ECKLES (with Harkins, W. D.): Arsenic in vegetation exposed to smelter smoke: *Chemical Abstracts*, 3.—(With Bateman, W. G.): The toxicity of thallium salts, first paper: *Journal of Biological Chemistry*, 7; January 1910.
- THOMPSON, WILLIAM FRANCIS: See above under Jordan and Starks.
- TOWNLEY, SIDNEY DEAN: A bright meteor (note): *Astronomical Society of the Pacific, Publications*, 21; December 1909.—The Naval Observatory (note): *ibid.*, 22; February 1910.—The shifting of the earth's axis: *Popular Science Monthly*, 75; November 1909.
- TREAT, PAYSON J.: The Harvard Union: *Stanford Alumnus*, 11; January 1910.
- WHITAKER, ALBERT CONSER: Syllabus of a course of eight lectures delivered . . . during March and April 1909, before the San Francisco chapter of the American Institute of Banking.
- YOUNG, ALLYN A.: California vital statistics: *American Statistical Association, Quarterly Publications*, 11; September 1909.—Report on national vitality, by Irving Fisher (review): *Economic Bulletin*, 3; March 1910.

Appended herewith will be found the special reports of the various department executives and other administrative officers, including the chairman of the principal administrative committees.

Respectfully submitted,

DAVID STARR JORDAN,
President.

December 31, 1910.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK

For the year 1909-10, the department faculty consisted of Augustus T. Murray, professor; Henry W. Rolfe, associate professor; Edward W. Hope, instructor; and Ernest J. Cummings, assistant. Two courses were also given by Professor Henry R. Fairclough, of the Department of Latin.

The following courses were given:

INSTRUCTOR	COURSE	Hours Weekly	Attendance of Students	
			1st Sem.	2nd Sem.
Murray	14	3	...	6
Murray	19	2	4	3
Murray	23	4-6	4	2
Murray*	23b	1-2	9	6
Murray	24	2	4	2
Murray	26	2-3	12	..
Murray	27	2-3	...	15
Fairclough	14	3	7	..
Fairclough	18	2	...	4
Rolfe	7	3	4	..
Rolfe	8	3	...	3
Rolfe	10	2	14	..
Rolfe	12	2	...	9
Hope	1	3	7	6
Hope	3	3	6	3
Hope	17	3	4	..
Hope	13b	2	....	14
			75	73

*A course on Homeric Civilization, given in conjunction with Messrs. Veblen and Rolfe.

During the year the sum of two hundred dollars was sent to the treasurer of the American School of Classical Studies at Athens, and this University has been added to the list of contributing colleges.

AUGUSTUS TABER MURRAY,
Professor of Greek.

LATIN

In 1909-10 the department consisted of Professor H. Rushton Fairclough, Associate Professor Jefferson Elmore, Assistant Professor B. O.

During the academic year the teaching staff of the German department consisted of George Hempl and James Owen Griffin, professors; Karl G. Rendtorff and William Alpha Cooper, associate professors; Macy Millmore Skinner, assistant professor, and George Henry Danton, acting assistant professor; and Bruno Boezinger and Hermann Hilmer, instructors.

There were registered in the department during the year 94 major students, of whom 9 were graduates and 85 undergraduates. Of the graduate students, 3 were candidates for higher degrees, and at the close of the year the degree of Doctor of Philosophy was conferred upon Bruno Boezinger, and that of Master of Arts, upon Cora Elizabeth Stager and Mary Sherburne Tower.

GEORGE HEMPL,
Professor of Germanic Philology.

ROMANIC LANGUAGES

During the year 1909-10, the faculty of the department consisted of Professor John Ernst Matzke, Associate Professor Oliver Martin Johnston, Assistant Professors Colbert Scarles, Clifford Gilmore Allen and Albert Guérard, and Acting Instructors Ernest George Atkin and Robert Edouard Pellissier.

In addition, Mrs. Sophie Boezinger assisted in the correction of French exercises, and Miss Hazel Lorena Michod had general supervision of the phonograph work.

At the end of the year Mr. Atkin and Mr. Pellissier both withdrew from the department in order to continue their studies at Harvard University, where scholarships had been offered to them. In their places Dr. Aurelio Macedonia Espinosa was appointed as Assistant Professor of Spanish. Dr. Espinosa is a graduate of the University of Colorado, '02, and obtained the degree of Ph. D. from Chicago University in 1909.

Finally, I am glad to record the promotion of Assistant Professor Colbert Searles to the rank of Associate Professor in the department.

The following table gives an idea of the courses given, with the attendance during either semester.

The number of major students registered in the department was 40; of this number 2 were recommended for the degree of A. B.

JOHN ERNST MATZKE,
Professor of Romanic Languages.

Report of the President

25

INSTRUCTOR	COURSE	No. of Sections	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
Johnston, Allen, Pellissier ...	1a. Elementary French ...	3	3	100	81
Searles	1b. Elementary French, Reading Course	1	3	23	22
Searles, John- ston	2. Second-year French Composition	2	2	24	12
Searles, Guér- ard, Johnston	3. Modern French Reading	3	2	81	68
Guérard	4a. French Conversation .	1	3	18	15
Searles	4b. French Pronunciation .	1	1	13	9
Guérard	5. Reading and Writing of French	1	3	18	15
Guérard	6. Advanced French Prose Composition	1	2	9	11
Searles.....	7. Outline Course in the History of French Literature	1	3	21	12
Johnston	8. Classical French	1	3	20	20
Matzke	9. History of French Lit- erature in the Nine- teenth Century	1	2	7	6
Guérard	10. French Lyric Poetry in the Nineteenth Cen- tury	1	2	8	...
Guérard	11. Augier	1	2	...	7
Allen, Atkin ..	12. Elementary Spanish ...	3	3	156	97
Allen	13. Second-year Spanish Composition	1	2	23	17
Atkin	14. Modern Spanish Read- ing	1	2	35	28
Allen	15a. Spanish Conversation.	1	1	4	2
Allen	15b. Spanish Pronunciation	1	2	18	14
Allen	16. Advanced Spanish Com- position	1	2	18	14
Allen	18. Outline Course in the History of Spanish Literature	1	2	7	7
Johnston	19. Elementary Italian....	1	3	13	9
Johnston	21. Dante and the Divine Comedy	1	2	...	56
Matzke	22. Phonetics	1	3	5	...
Matzke	23. Teachers' Course in French	1	1	...	5
Matzke	24. Boileau	1	3	3	...
Matzke	25. Racine	1	3	...	4
Matzke	26. The Roman d'Aventure	1	2	2	2
				608	519

ENGLISH LITERATURE AND RHETORIC

The faculty of the department consisted of Professors Melville Best Anderson and Alphonso Gerald Newcomer; Associate Professor Raymond MacDonald Alden; Assistant Professors Samuel Swayze Seward, Jr., Howard Judson Hall, Lee Emerson Bassett, Henry David Gray, and William Dinsmore Briggs; Instructors John Kester Bonnell and Theresa Peet Russell, and Assistants Edith R. Mirrielees (Acting Instructor), Alice W. Kimball, Italia E. Flaus and Lillie M. Rible.

At the close of the academic year, in May, Dr. Melville Best Anderson resigned his chair, withdrawing under the provisions of the Carnegie Foundation that he might continue uninterrupted his work in the translation of Dante. Professor Anderson assumed charge of the Department of English at the opening of the University in 1891, and continued in that position for fifteen years. In 1906 he laid aside his administrative duties, but remained as senior professor and adviser, carrying his full share of academic work. In establishing the policies of the department and shaping its ideals his influence has been both wide and deep, and the loss which by his withdrawal the University suffers on the side of pure humanism is one that cannot be easily repaired.

For the ensuing year Mr. Everett Wallace Smith, A. B. (Stanford, 1899), has been appointed Instructor in English. Mr. Smith has been engaged in journalism, holding for the last three years an editorial position in the Forest Service at Washington, D. C. His special work here will be the conduct of classes in composition looking toward news and editorial writing.

Leaves of absence for the ensuing year were granted to Professors Seward and Hall, who have been in residence ten and six years respectively.

Doctor Alden conducted courses in English literature at the University of Chicago during the first term of the summer quarter (1910), and Doctor Gray conducted courses at the summer session of the University of Oregon.

The number of major students registered in the department was 149, of whom 1 was a special student, and 17 were graduates. Thirty students were given the degree of A. B., and 3 the degree of A. M.

Following is a table of the courses given, with the enrollment in each. In addition to these, Dr. Briggs gave two courses in the Department of English Philology.

ALPHONSO GERALD NEWCOMER,
Professor of English.

INSTRUCTOR	COURSE	Unit Hours	Enrollment	
			1st Sem.	2nd Sem.
Bonnell, Hall, Mirrielees ..	A. Elementary Composition	1	140	92
Bassett, Bon- nell	1. Vocal Expression	3	84	81
Briggs, Gray, Russell	2. Composition	2	140	129
Mirrielees, Newcomer, Seward.....	2A. Narration and Description..	2	32	59
Seward	2B. Exposition	2	30	33
Seward	3. Note-taking	1	52	41
Newcomer	4. Modern English	1	...	86
Newcomer, Russell	5. Elementary Classics	3	85	80
Alden	6. Introduction to Poetry.....	3	...	56
Bassett, Hall.	6A. Tennyson	3	59	29
Newcomer, Seward	10. Shakspeare	2	36	37
Alden	10A. Shakspeare	3	...	54
Bassett	14. Vocal Interpretation	2	25	16
Bassett, Bon- nell	15. Public Speaking	2	11	23
Hall, Russell ..	21. Advanced Composition	2	40	30
Seward	22. Advanced Narration	1	12	...
Alden, Briggs .	24. Argument	3	47	...
Alden, Bassett.	25. Oral Debate	2	10	14
Seward	28. Teacher's English	3	20	21
Alden	30. Survey English Literature....	2	...	18
Hall	32B. History of English Litera- ture	3	...	36
Alden	32A. 18th Century Literature....	3	43	...
Seward	34A. Victorian Prose	2	26	...
Seward	34B. Victorian Poetry	2	...	16
Briggs	35. English Fiction	2	10	5
Russell	36. Satire	2	...	26
Gray	38. Modern Drama	3	...	63
Briggs	41. Spenser	3	...	11
Newcomer	43. Wordsworth, etc.	3	37	...
Anderson	44. Browning	2	72	60
Alden	53. Lyric	2	13	...
Anderson	54. Comparative Literature	3	11	...
Anderson	55. Shakspeare	3	...	16
			1035	1131

ENGLISH PHILOLOGY

During the academic year 1909-10 Dr. William Dinsmore Briggs, of the Department of English Literature and Rhetoric, conducted the elementary course in Old English, and, as before, I wish to express my obligations to him for his faithful and successful assistance, which has enabled me to concentrate more energy on the advanced work of the department.

The most important work of the department was the research course, which was particularly intended to give to the future teachers of English some practice in the independent working out of fresh material in the line of philological investigation. The term "Philology" was taken in its fullest and broadest sense. The work during the first semester was devoted to a continuation of the topic selected for the academic year 1908-9, viz., a critical examination of the methods of recent historians of English Literature; the second semester was devoted to special studies in English word history and terminology.

The following is a list of the courses given during the year :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Briggs	1. Old English	3	22	..
Flügel	2. Chaucer (elementary)	2	39	..
Flügel	3. History Early English Literature	3	32	..
Flügel	7. Middle English Grammar	2	10	..
Flügel	11. Research	2	6	10
Flügel	4. Middle English Exercises	3	..	9
Flügel	8. Chaucer (advanced)	2	..	32
Flügel	9. Ballads	2	..	14
			109	65

EWALD FLÜGEL,
Professor of English Philology.

PHILOSOPHY

The members of the Department for 1909-10 were Dr. Henry W. Stuart, professor; Dr. George H. Sabine, assistant professor, and Mr. John M. Fletcher, assistant. The courses given were as follows :

INSTRUCTOR	SUBJECT	Credit Value	Registration	
			1st Sem.	2nd Sem.
Stuart, Sabine	1. Elementary Logic	3	50	...
Stuart	2. Elementary Ethics	3	20	...
Sabine	3. History of Philosophy.....	3	13	12
Sabine	4. Philosophy of XIX Century..	3	2	...
Sabine	5. Philos. in XIX Cent. Life.....	3	...	14
Stuart	6. Advanced Logic	3	...	30
Sabine	8. Hist. and Appl. of Evol.....	2	...	14
Stuart	9. Problems of Mod. Philos.....	2, 3	1	4
Sabine, Stuart	10. Special Work	2, 1	1	1
			87	75

During the second semester, Dr. Sabine received a call to Cornell University for the year 1910-11, to supply in the Sage School of Philosophy in the absence of Professor J. E. Creighton. Leave of absence was granted Dr. Sabine for this purpose. Dr. Addison W. Moore, Professor of Philosophy in the University of Chicago, was engaged for the second semester of 1910-11, to conduct the historical courses of the Department.

HENRY WALDGRAVE STUART,
Professor of Philosophy.

PSYCHOLOGY

The courses of instruction given and the attendance in each course are tabulated below:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Angell	1. General Psychology	4	109	..
Martin, Angell.	2. Beginners' Laboratory	3	20	20
Angell	3. Evidence	2	..	29
Angell, Martin.	4. Advanced Laboratory	3	5	4
Martin	6. Applied Psychology	2 or 3	..	67
Martin	6a. Abnormal Psychology	2 or 3	32	..
Angell, Martin.	9. Research	Vary- ing	3	3
			169	123

The faculty of the Department for the academic year 1909-1910 consisted of Frank Angell, professor, Lillien Jane Martin, associate professor, and Paul R. Radosavljewich, student assistant.

During the summer Professor Martin was abroad working on the subject of motor images.

The course in beginners' laboratory work now contains as many students as it is possible to take with the present facilities for instruction. The larger lecture courses are still problems of efficient instruction.

FRANK ANGELL,
Professor of Psychology.

EDUCATION

The following is the record of attendance in the several courses offered by the Department during the year:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cubberley	1. Public Education in America	2	158	..
Davidson	2. Educational Theory — Intro- ductory	2	..	146
Cubberley	3. History of Education in Europe	3	37	44
Bentley	5. Educational Psychology	3	..	37
Bergström	6. Secondary Education	2	77	..
Bentley	6. Secondary Education	2	..	63
Cubberley	10. State School Administration.	3	13	17
Bergström	12. Foreign School Systems.....	3	10	..
Davidson	13. Logic of Education.....	2	19	15
Davidson	14. Social Phases of Education..	2	15	..
Davidson	16. Educational Theory—Advan- ced Course	2	8	5
Davidson	17. The Curriculum (Saturday morning course).....	2	19	27
Dailey	18. Training of Teachers.....	1	..	12
Bergström	19. Pedagogical Seminary	2	5	..
Bentley	19. Pedagogical Seminary	2	..	5
Bergström	20. Thesis Work	1	1	..
Cubberley	21. Special Courses	2-3	6	4
Evenden	22. Practice Teaching	4	20	11
Evenden	22a. Method and Management of Instr.	1	..	4
Cubberley	23. Journal Club.....	1½	27	27
			415	417

The work of the Department was carried on during the year 1909-10 by the following staff: Ellwood Patterson Cubberley, professor; John Andrew Bergström, professor (died February 28, 1910); Percy Erwin Davidson, assistant professor; Rufus Clarence Bentley, assistant professor; Morris Elmer Dailey, lecturer; and Frances Elizabeth Short and Edward Samuel Evenden, assistants. Professor Bentley was here only the second semester.

The serious affliction from which Professor Bergström suffered, and which finally caused his death, made it necessary for him to give up his classes late in October, and temporary arrangements had to be made to complete the semester. Each of his courses contained one of our advanced students, and to these was entrusted the work of carrying the classes along to the end of the semester along the lines which Dr. Bergström had followed. Mr. Edward S. Evenden carried the course in Secondary Education to a successful completion, as did Mr. Albert Cobert the course in Foreign Schools and Mr. Arthur Heche the work of the Pedagogical Seminary.

For the second semester Mr. Rufus Clarence Bentley, formerly Dean of Clark College, was obtained as lecturer and as a temporary supply, though it was later decided to appoint him as an assistant professor and retain him. During the second semester he continued the courses Professor Bergström had started, and along the lines he had marked out.

Mr. Evenden received a temporary appointment as assistant to oversee the work of Practice Teaching, which had, in the pressure of other work, been rather neglected. He has given good service, and has been continued in the work for the coming year.

ELLWOOD P. CUBBERLEY,
Professor of Education.

HISTORY

The faculty of the department for the year 1909-1910 consisted of Professors Ephraim Douglass Adams, Arley Barthlow Shaw, and Herbert Eugene Bolton; Associate Professor Edward Benjamin Krehbiel; Assistant Professor Payson Jackson Treat; and Instructors Percy Alvin Martin and Sedley Lynch Ware.

Assistant Professor Henry Lewin Cannon was absent on leave throughout the year, spending most of his time in study and research at the Public Record Office in London, his place being temporarily taken by Dr. Ware, who rendered excellent service. It was hoped that the services of Mr. Ware might be retained to fill the vacancy in American Colonial History, the one serious gap now remaining in the work of the department. Dr. Ware has since accepted an instructorship in History in the University of Wisconsin.

The following is a list of the courses given in 1909-1910, with hours of credit and attendance for each semester.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Martin	1. Training	1	49	37
Show	3a. Middle Ages	3	64	
	3b. Middle Ages			95
Ware	4a. English History	3	161	
	4b. English History			165
Krehbiel	5a. European History	2	96	
	5b. European History			112
Adams	7. United States History.....	2	92	104
Bolton	8. Westward Movement	3	45	49
Treat	9. The Far East.....	3	111	121
Martin	12. History of Germany.....	3	30	31
Martin	12a. History of France.....	2	17	11
Show	13a. The Ancient Church.....	2	11	
Show	13b. The Mediaeval Church.....	2		10
Krehbiel	15a. French Rev. and Napoleon..	2	21	
Krehbiel	15b. European 19th Century.....	2		41
Show	16. Teachers' Course	2		29
Adams	18. Eng. and Am. in Civil War..	3	14	11
Bolton	19. Anglo-Saxon Southwest	2	8	11
Treat	21. Tropical Colonization	2	6	
Treat	22. History of Australasia.....	2		26
Show	27. Painting of Renaissance.....	1	4	3
Bolton	28. Spanish Southwest	2	5	4
Martin	30. Renaissance in Italy.....	2	6	6
Adams	31. American Diplomatic History	2	13	10
Krehbiel	32. Spread of Protestantism.....	2	6	6
Adams	35. American-European Relations	2	3	3
Treat	36. Philippines under Spain	2	1	
Ware	37. U. S. Const. History.....	2	7	5
	Thesis	Vari- ous	6	6
			774	894

Some years ago Dr. J. C. Branner called the attention of the History Department to the existence at Santa Cruz of a rare collection of contemporary pamphlets relating to the French Revolution. These had been gathered by the late John R. Jarboe, a lawyer of San Francisco. Various efforts were made to interest the family of Mr. Jarboe in a plan for disposing of this material to Stanford University, but without success until the present year, when the matter was turned over by the department to Professor E. B. Krehbiel, as of especial interest to his field of work. As a result of his energy, and of the sympathetic interest of Mr. Timothy Hopkins of the Board of Trustees, a committee of the faculty,

consisting of Librarian G. T. Clark, and Professors Matzke, Guérard, Krehbiel, and Adams, was able to make a careful examination of the collection, and to recommend its purchase for the Library. The Board of Trustees approved the purchase, and the collection is now being catalogued. In addition to the valuable pamphlet source material, it contains many rare and beautiful books, some twenty-five hundred titles in all, and will be of great profit to the students of many departments.

Among fields of historical work peculiarly suited to the location of Stanford University, is that of the history of the countries of the Pacific Ocean. Through the generosity of Mr. Thomas Welton Stanford, of Melbourne, Australia, a large collection of books on Australia, bearing on all topics relating to that country, was some years ago presented to the Library. It constitutes the best Australian collection in America. The Library is weak, however, in works on other countries in the field.

In 1906-1907, Mr. H. C. Hoover, Stanford '95, gave \$1,000, and Mr. D. C. Mitchell, Stanford '96, \$250, to aid in filling this gap. This fund has been very judiciously expended under the direction of Professor Treat, the instructor in charge of the work, but the gift is now exhausted and the field is so large that further gifts or appropriations for it will be gladly welcomed.

The publications of members of the department for the year July 1909 to July 1910 will be found under another head. The number of graduate students enrolled in the department for the year was sixteen, of whom one received the degree of Doctor of Philosophy, and four the degree of Master of Arts, at the annual commencement in May.

EPHRAIM DOUGLASS ADAMS,
Professor of History.

ECONOMICS AND SOCIAL SCIENCE

The work of the department for the year 1909-10 was carried on by Professors Allyn Abbott Young and Burt Estes Howard, Associate Professors Thorstein Veblen (present during the first semester) and Albert Conser Whitaker, Assistant Professors Harry Alvin Millis (present during the second semester) and James Marvin Motley, and Acting Instructor Ira Brown Cross.

In the spring of 1910 Assistant Professors Millis and Motley were promoted to the rank of Associate Professors. During the first semester of 1909-10, Professor Millis was absent on leave in order that he might continue his work as Superintendent of Agents of the Western Division in the investigations carried on by the United States Immigration Commission. Associate Professor Veblen resigned at the end of the first semester of 1909-10. At the end of the year Associate Professor Motley resigned in order to take a position at Brown University. Professor

Young has taken a leave of absence for the year 1910-11 in order to accept a position in Harvard University for the year.

The courses given and attendance were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Young, Cross..	1. Elements of Economics	3	303	242
Millis	2. Principles of Economics	2	..	12
Whitaker	4. Money and Banking	3	19	15
Young	5. Railway Transportation	3	50	..
Whitaker	6. Corporations and Trusts	2	51	35
Millis	10. Labor Problems	3	..	36
Motley	11. Labor Legislation	2	28	21
Motley	12. Social Economics	3	54	44
Cross	13. Socialism	3	39	..
Cross	14. Economic History	3	..	7
Veblen	16. History of Pol. Econ.	3	4	..
Young	16. History of Pol. Econ.	3	..	9
Whitaker	17. Value and Income	2	4	4
Motley	18. Seminar in Soc. Sc.	2	8	6
Veblen	19. Economic Factors in Civiliza- tion	3	3	..
Young	21. Seminar in Finance	2	10	7
Millis	26a. Seminar in Immigration Problems	2	..	4
Young	Thesis	2	1	..
Veblen	Thesis	5	1	..
POLITICAL SCIENCE				
Howard	30. Comparative Fed. Governm't	3	18	19
Howard	31. American Politics	3	61	..
Howard	32. Municipal Government	3	..	127
Howard	34. Seminar in Polit. Sc.	2	7	26
			661	614

The number of major students registered during the year was 157, consisting of 13 graduates, 132 regular undergraduates, and 12 special students.

ALBERT CONSER WHITAKER,
Associate Professor of Economics.

LAW

The faculty of Law for the year 1909-10 consisted of Professors Fred-eric Campbell Woodward, Arthur Martin Cathcart, and Wesley Newcomb

Hohfeld, Acting Professor Howard Leslie Smith, and Associate Professors Charles Andrews Huston and Joseph Walter Bingham. Professor Charles Henry Huberich spent the year at the law school of the University of Wisconsin, in exchange for Professor Smith. The course in California Practice was again given by John Slater Partridge, Esq., of the San Francisco bar.

The registration of students in the Law School was 86, of whom 26 were graduate students, 36 seniors in the pre-legal course, and 24 special students. The registration of students in the pre-legal course, excluding seniors who are counted as students in the Law School, was 189.

The courses of instruction given, and the enrollment in each, were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Huston	1. Introduction to Law.....	2	...	85
Smith	2. Crimes	4	39	...
Smith	3. Constitutional Law	3-3	20	17
Huston	5. Municipal Corporations	2	...	6
Smith	7. Conflict of Laws.....	4	...	8
Woodward	10. Persons	2	33	...
Bingham	11. Introduction to Property.....	3-3	39	31
Bingham	13. Wills	4	16	...
Bingham	16. Water Rights	2	...	10
Bingham	17. Mining Law	2	...	4
Cathcart	18. Torts	5	49	...
Woodward	19. Contracts	4-3	67	59
Huston	21. Agency	4	...	36
Woodward	23. Sales	4	...	11
Huston.....	25. Corporations	4	7	...
Cathcart	26. Common Carriers and Public Service Corporations	3	...	7
Huston	27. Insurance	3	15	...
Hohfeld	31. Equity I	4	...	38
Hohfeld	32. Trusts	2-2	17	12
Cathcart	34. Damages	2	...	15
Cathcart	35. Common Law Pleading.....	2	24	...
Cathcart	36. Equity Pleading	1	22	...
Cathcart	37. Code Pleading	2	...	20
Hohfeld	38. Evidence	3-3	10	6
Partridge	39. California Practice	2	...	10
			358	375

The total number of volumes in the Law library on August 1, 1909, was 13,502. During the period from August 1, 1909, to July 31, 1910, 950 volumes were added. Of these, 835 were acquired by purchase, 22 by gift, and 93 by binding. The total number of bound volumes in the Law library

on August 1, 1910, was 14,452. During the year the consolidated statutes of a number of states were purchased. The completion of this collection, the acquisition of the session laws of the various states, and the continuation to date of the official reports of all American courts of last resort, are the most immediate needs of the library. As I reported last year, there is also urgent need of a librarian who can devote all of his time to the care and conservation of the library, the completion of an adequate card-catalogue, and the conduct of negotiations for the purchase of books.

FREDERIC CAMPBELL WOODWARD,
Professor of Law.

GRAPHIC ART

The personnel of the department faculty was as follows:

Arthur Bridgman Clark, associate professor; Robert Barthlow Harshe, assistant professor; Mrs. Chloe Leslie Starks, instructor; and Miss Harriet Park, assistant.

During the year the following courses of instruction were given:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Starks	1. Elementary Still-life	2-4	23	18
Harshe	2. Casts, Antique	2-5	10	18
Harshe	3. Head, from Life.....	2-5	9	12
Harshe	4. Color	2-5	5	6
Clark	5. Landscape	3	9	19
Clark	6. Lectures	2	32	41
Starks	9. Science Illustration.....	2	2	3
Harshe	10. Teachers' Course	3	...	21
Clark	11. Design	3-5	33	20
Harshe	12. Illustration	2-5	6	10
Harshe	13. Handicraft	2	8	9
			137	177

Several photographs of standard works of art were obtained through personal selection abroad during the summer vacation. These will assist the lecture work in this field very materially.

The working rooms of the department have been over-crowded during the year, the limit of capacity being reached in the majority of classes. The lecture work has been possible through the courtesy of the Department of Physics, which has permitted the use of its room equipped with a reflectoscope. The course for intending teachers of art was given this year with marked success by Assistant Professor Harshe.

Exhibitions arranged during the year under the auspices of the Art Club were as formerly of marked excellence. They comprised the following:

- Drawings by the students of the Art Institute of Chicago.
- Original drawings used in magazine illustration by Messrs. John R. Boyd, J. S. L. Williams, Harold McCormick, and Carlton T. Chapman.
- Paintings, Landscape and Portraits, by Robert Barthlow Harshe.
- Drawings by E. H. Blashfield.
- Etchings by Joseph Pennell.
- Professor Harshe has continued to produce a good number of paintings of local subjects and to exhibit them in various galleries.

ARTHUR BRIDGMAN CLARK,

Associate Professor of Graphic Art.

MATHEMATICS

The personnel of the department faculty was as follows: Robert Edgar Allardice, professor; Rufus Lot Green, professor; Hans Frederick Blichfeldt, associate professor.

The courses given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Blichfeldt	1. Trigonometry	2	39	2
Blichfeldt	2. Solid Geometry	2	...	24
Green	3. Algebra	5	56	...
Green	5. Coord. Geometry	5	...	19
Allardice	6. Plane Geometry	2	13	9
Blichfeldt	7. General Course	3	24	20
Allardice	9. Calculus	3	16	17
Green	10. Advanced Coord. Geometry...	2	8	10
Allardice	11. Adv. Calculus	3	4	...
Blichfeldt . . .	13. Non-Euclidian Geom.	2	...	4
Green	14. Theory of Equations.....	3	2	2
Blichfeldt	15. Diff. Equations	3	3	...
Allardice	16. Theory of Functions.....	3	...	4
Allardice	17. Adv. Theory of Functions....	4	1	1
Allardice	21. Projective Geometry	2	6	7
			172	119

ROBERT EDGAR ALLARDICE,

Professor of Mathematics.

APPLIED MATHEMATICS

The active teaching force of the department for the year 1909-10 consisted of the following persons: Professor Leander Miller Hoskins, Associate Professors Halcott Cadwalader Moreno and Sidney Dean Townley; Acting Assistant Professor E. W. Ponzer, and Instructor Jesse Dwight Suter. Assistant Professor William Albert Manning spent the year at the University of Illinois, in exchange with Mr. Ponzer. During the year the following assistants were employed: H. C. Burbridge, A. E. Caswell, G. Costar, L. M. Edwards, E. Jordan, W. N. Lacey, G. F. McEwen, A. E. Smothers, A. F. Taggart, R. P. Webb, R. N. Wooster.

The courses of instruction given, with the attendance in each, are shown in the following table:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Suter	A. Solid Geometry	2	26	...
Suter	B. Trigonometry	3	...	40
Moreno, Suter, Ponzer	1. First-year Mathematics	5	116	100
Townley, Suter, Ponzer, Hos- kins	2. Calculus	3	115	84
Hoskins, More- no, Townley	3. Theoretical Mechanics	5	103	84
Townley	4. Adjustment of Observations..	2	...	14
Townley	5. General Astronomy	3	32	...
Townley	5a. Practical Astronomy	3	...	15
Moreno	6. Graduate course	2	2	...
Moreno	7. Graduate course	2	...	2
Hoskins	*3a. Hydraulics	3	...	82
Hoskins	*3b. Hydraulic Motors	3	49	...
			443	430

*Scheduled under Engineering.

LEANDER MILLER HOSKINS,
Executive Head.

PHYSICS

The faculty of the Physics Department for the year 1909-10 consisted of Professor Fernando Sanford, Associate Professor Frederick John Rogers, Assistant Professors Elmer Reginald Drew and Joseph Grant Brown, and Laboratory Assistants Shirley Hyatt, George Francis McEwen, Perley Ason Ross and Albert Edward Caswell.

The courses given in the department during the year, with the attendance in each class, are given below:

INSTRUCTOR	COURSE	Lecture Units per Week		Lab. Units per Week		Attendance	
						1st Sem.	2nd Sem.
Brown, Hyatt, McEwen . . .	1. Dynamics	1	1	4	4	48	32
Drew, Hyatt . .	2. Elec & Mag . . . . .	..	1	..	3	..	29
Sanford, Ross..	3. Heat . . . . .	..	1	..	2	..	14
Brown	4. Sound	1	..	2	..	4	..
Sanford	5. El. Optics . . . . .	..	..	3	..	2	..
Drew, Caswell.	6a. Engineering Phys..	3	..	3	..	39	..
Rogers, Caswell	6b. Engineering Phys..	..	3	..	3	..	31
Sanford, Ross.	7a. Phys. for Medicine.	2	..	2	..	20	..
Sanford, Hyatt, Rogers, Cas- well	7b. Phys. for Medicine	..	2	..	2	..	13
Rogers, McEwen	9. Electrical Measure- ments	1	..	3	..	20	..
Sanford	10. Adv Optics . . . . .	..	..	4	4	2	1
Sanford	11. Gen Physics	4	4	..	..	2	2
Drew, McEwen, Caswell	12. Anal. Mechanics . .	..	4	..	..	..	3
Sanford	13. Teachers' Phys. . .	1	1	..	..	3	3
Rogers	16. Gas Theory . . . . .	..	2	..	..	..	3
Rogers, Drew..	18. Electrical Theory .	3	3	..	..	4	3
Sanford	19. Investigation . . . .	..	..	..	..	3	5
Sanford	Theory of Electricity . .	..	1	..	..	..	5
						147	144

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY

The teaching staff in the Department of Chemistry for the year 1909-10 consisted of Professors John Maxson Stillman, Lionel Remond Lenox, Edward Curtis Franklin, Stewart Woodford Young; Assistant Professor John Pearce Mitchell; Instructors William Henry Sloan, William George Bateman, George DeForest Barnett; Acting Instructor Fred Finlay Fitzgerald; Student Assistants Robert W. Poindexter (second semester), Ernst H. Staber (first semester), George S. Bohart, Thornton Mills Hopler (first semester), Eloise Jameson, Elmer Rupel Weaver, Ralph Edward Sanborn (second semester), Thomas Meredith Cramer, Harry Johnson Sears (second semester).

Associate Professor Robert Eckles Swain was absent on leave during the past year, engaged in special studies in Europe and in Yale University. His courses in Toxicology and in Organic Chemistry for medical students, were conducted in the second semester by Mr. Fitzgerald, and his courses in Physiological Chemistry were suspended for the year.

Instructor W. G. Bateman resigned at the end of the first semester, having accepted a professorship at the Imperial Chinese University at Tientsin. Instructor George DeF. Barnett resigned at the end of the year, to pursue the study of medicine.

For the ensuing year, Mr. Thomas B. Hine (Stanford, '10) and Mr. Paul H. Waldruff (Stanford '10) have been appointed in place of Instructors Bateman and Barnett respectively.

The courses in Chemistry during the year 1909-10, and the attendance upon them, were as follows:

LECTURE COURSES

INSTRUCTOR	COURSE	Units per Week		Attendance	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Mitchell	*1. General Inorganic	2	2	154	120
Mitchell	*1. General Inorganic	3	2	46	46
Stillman	*2. Principles	3	3	24	17
Franklin	*3. Organic	2	2	17	16
Stillman	*4. Industrial	2	2	15	17
Stillman	†5. History of Chemistry	2	..	11	...
Lenox	†6. Qualitative Analysis ..	1	1	31	44
Young	*8. Physical Chemistry ...	3	3	7	5
Franklin	†12. Seminary	1	1	8	10
Young	†10. Theories of Analytical	..	1	...	14
Stillman	†x. Special Reading .....	..	2	...	2
Fitzgerald	†Med. 1. Organic .....	..	3	...	12
				313	303

All laboratory courses arranged to be completed in one semester.

In addition to registrations above given, fourteen students occupied desks for making up work previously registered, but incomplete.

Of the 274 students occupying laboratory desks during the year, the distribution according to their major subjects is as follows:

Chemistry 69, Geology and Mining 59, Physiology 34, Medicine 13, Electrical Engineering 33, Mechanical Engineering 19, Civil Engineering 14, Pre-Legal 10, Economics 7, Botany (General and Systematic) 5, Physics 2, Zoology 4, Entomology 1, Psychology 1, Mathematics 1, Greek 1, German 1.

*Courses continuing throughout the year.

†Courses complete in each or either semester.

LABORATORY COURSES

INSTRUCTORS	COURSE	Unit Hours per Sem.	Attendance	
			1st Sem.	2nd Sem.
Mitchell, Barnett, Hopler and assistants Cramer, Sears Lenox, Bateman (Poindexter) Franklin, Bohart Sloan Lenox, Sloan Young, Jameson Lenox, Staber, Sanborn Fitzgerald	AI. General Inorganic	2	43	...
	AII. General Inorganic	2	86	59
	b. Qualitative Analysis	3	31	44
	c. Organic preparations	3	6	10
	d. Quantitative Analysis	3-4	21	16
	e. Mineral Analysis	3-4	8	8
	f. Physical Chemistry	3-5	4	...
	h. Assaying	3-4	13	16
	Toxicology	3	...	14
	x. Advanced, Special or Research	3-5	3	1
Lenox	x. Advanced, Special or Research	3-5	1	...
Franklin	x. Advanced, Special or Research	2-5	2	6
Young	x. Advanced, Special or Research	3-5	1	2
			219	176

These figures do not include students who may have been in attendance upon lecture courses without occupying laboratory desks, but will serve to illustrate adequately the extent to which the laboratories of chemistry contribute to the training of various classes of students. Comparison of the above figures may be made with more detailed statistics published in the Report of the President for the year ending July 31, 1905. The general relations do not differ materially from those above given.

Lectures were also given without separate registration, as supplementary to laboratory courses, by Professor Lenox, one hour per week each semester on Assaying; and by Instructor Sloan, one hour per week each semester on Quantitative Analysis.

Work of research character carried on during the year was as follows:

Professor Franklin completed measurements on the electrical conductivity of concentrated solutions in liquid sulphur dioxide at varying temperatures and prepared potassium ammonio-plumbite, an important representation of the class of ammonio-salts. This work will soon be published.

Professor Young has extended his researches in the field of super-cooled and super-saturated liquids, having especially investigated the influence of mechanical impact in inducing crystallization in such systems. This work will shortly be published.

During the past summer months, Professor Swain acted as special agent of the Government in the investigation of the effects of smelter smoke on vegetation. Dr. Mitchell of this department and Professor Peirce of the Botany department were associated in the same investigation. Professor Swain has also been intrusted by the Board of Consulting Scientific Experts of the Government with the conduct through the coming semester of an investigation of the effects of the use of sulphured fruit in the human organism. This is an extension of the general investigation begun a year ago under direction of the Board. The expenses of the investigation will be supported by the Government. Assistant Professor Mitchell continued his work in the methods of water analysis. In collaboration with Professor Peirce of the Department of Botany, he was also engaged in a study of the effects of definite concentrations of sulphur dioxide on various living plants. This work is unfinished, and will be continued during the coming year.

Instructor Sloan was engaged in the analysis of certain mineral waters of the state. Results of the analysis will soon appear in a bulletin of the United States Geological Survey, and will later appear with discussion of methods as a separate paper, in the Chemical Journal.

Mr. F. F. Fitzgerald, acting instructor, and candidate for the degree of Doctor of Philosophy, completed his work on the electrical conductivity of methylamine and ethylamine, and on the viscosity of solutions in ammonium, methylamine and sulphur dioxide. This work was under the direction of Professor Franklin.

Miss Eloise Jameson completed a study of the zinc ammonium sulphates, with special reference to their use as standardizing reagents. This work, carried on under direction of Professor Young, will soon be published.

Mr. W. D. Forbes, candidate for degree of A. M., was engaged in analyses of certain mineral springs of this vicinity, under supervision of Professor Stillman. Mr. T. B. Hine was engaged, under direction of Professor Franklin, in a study of the action of potassium-amide on thallium nitrate in solution in liquid ammonia.

Mr. G. S. Bohart investigated, under Professor Franklin's direction, the action of ammonia solutions of potassium-amide on cadmium iodide and nickel iodide.

JOHN MAXSON STILLMAN,
Professor of Chemistry.

GENERAL BOTANY

The personnel of the department for the academic year 1909-10 was as follows: Professor Douglass Houghton Campbell, Associate Professor (now Professor) George James Peirce, Assistant Professor Leonas Lancelot Burlingame, and Samuel Hash Sherfy, assistant.

The courses given by the department and the attendance on them is indicated by the following table:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Campbell, Peirce, Burlingame..	1. Elementary	3-3½	59	50
Campbell	2. Algae	5	3	...
Campbell	3. Archegoniatae	5	...	3
Peirce	5. Physiology	3	6	...
Peirce	7. Physiology	1	23	...
Peirce	9. Physiology	3	...	7
Burlingame....	10. Technique	3	5	...
Campbell, Peirce	12. Investigation	2-5	1	2
			<hr/> 97	<hr/> 62

With the exception of courses 7 and 8, all courses in this department are laboratory courses with one lecture a week.

The members of the department were assisted during the first semester in caring for the unusually large number in Botany by Charles Shoemaker Morris, a graduate of this University, now teacher of Biology in the Palo Alto High School.

The following studies have been pursued during the year:

Professor Campbell has made further studies of the development of the Screw-pine (*Pandanus*) and a paper on the embryo-sac of *Pandanus coronatus* was published in the Bulletin of the Torrey Botanical Club. A paper on the embryo and young sporophytes of *Angiopteris* and *Kaulfussia*—two ferns of the eastern tropics—was prepared for a volume recently published in honor of Professor Treub, the retiring Director of the Department of Agriculture of the Netherlands Indies. An extensive monograph of two families of ferns, the *Marattiaceae* and the *Ophioglossaceae*, has been completed and is now on the press of the Carnegie Institution of Washington.

Professor Peirce has carried on his experimental investigation of the liberation of heat in respiration, using the constant temperature

chambers and the calorimeters described in preceding reports. The Carnegie Institution of Washington has aided in the study of the peculiar organisms of the salt pools on the shore of the Bay of San Francisco. The Forest Service of the United States has furnished material for the experimental study of the effects of smoke on vegetation, which has been going on for the last few years in cooperation with Professors Swain and Mitchell of the Department of Chemistry.

Assistant Professor Burlingame has continued his investigation of the morphology and the cytology of *Podocarpus*, and will be ready to publish his results shortly. In the garden of Mr. James Flood of Menlo Park there are remarkably fine specimens of *Araucaria* from which, through Mr. Flood's courtesy, Mr. Burlingame is obtaining material which will enable him to complete a study of these plants, which elsewhere fruit rarely so far north.

In addition to the coöperation of the Department of Chemistry through Professors Swain and Mitchell, we are glad gratefully to acknowledge the continued help of the Department of Mechanical Engineering in various ways. This help, and that now coming to us because of the relations entered into between this department and the Carnegie Institution and the Federal Government, have increased the scope and the efficiency of our work. These combinations are in every way encouraging, but unless still further means are provided by the University itself or by its friends we shall continue to lose, as stated in previous reports, those whose preliminary training has brought them to the point when they may begin their professional training as botanists. We cannot hold such students, unless we can aid them to meet their living expenses.

The collection of portraits of eminent naturalists has been continued in the usual way by purchase, and the Director of the Gray Herbarium of Harvard University has generously given us a copy of the rare portrait of Asa Gray engraved on wood and printed on silk paper by Kruel.

DOUGLAS HOUGHTON CAMPBELL,
Professor of Botany.

SYSTEMATIC BOTANY

The instructing body for the academic year 1909-10 consisted of Professor William Russell Dudley, Assistant Professor LeRoy Abrams and Acting Instructor James I. W. McMurphy. The herbarium assistants were Miss Josephine D. Randall and Miss Jessie P. Rose.

Miss Jessie P. Rose carried on a special study of the flora in the vicinity of Klamath Lake, Oregon, where she had spent two summers in field work.

Miss Josephine D. Randall, in coöperation with Professor Dudley, began a critical study of the flora of the Monterey Peninsula.

Mr. James I. W. McMurphy continued his studies on the *Madieae*. His thorough field work is bringing out valuable information concerning the distribution of this peculiar western group of compositae.

Assistant Professor Abrams continued his studies on the Southern California flora. During the present summer vacation he is holding a research scholarship at the New York Botanical Garden, where he is completing his paper, "A Phytogeographic and Taxonomic Study of the Southern California Trees and Shrubs."

Professor Dudley has continued his study of plant distribution in Western America, and also his studies on the flora of the Santa Cruz Mountain Peninsula.

Three thousand one hundred and thirty-one herbarium specimens were mounted for the general herbarium during the year. The mounting of a series of specimens illustrating the local flora was also undertaken, and will be completed during the coming academic year.

The courses of instruction given and the enrollment in each, were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Abrams	1. Spermaphyta	3	23	20
Dudley, McMurphy ..	2. Geographical Distribution and Forest Botany	3	..	11
Dudley, McMurphy ..	3. Fungi	4	4	..
Abrams	4. Elementary Taxonomy	2	..	8
Abrams	5. Compositae	2	2	..
Dudley	8. Phytogeography	2 or more	1	1
Dudley, Abrams	9. Special Taxonomy	2 or more	1	1
Dudley	10. Graduate	2 or more	1	...
			—	—
			32	41

The two very small rooms available for general laboratory work are entirely inadequate for the present needs of the department. Temporary relief was given the second semester by being allowed the use of a room in the Geology Department on certain days; but it is essential that a permanent laboratory be allotted the department, where students and instructors may work without such serious handicap.

WILLIAM RUSSELL DUDLEY,
Professor of Botany.

PHYSIOLOGY AND HISTOLOGY

The teaching force of the department for the year consisted of Oliver Peebles Jenkins and Frank Mace McFarland, professors; and James Rollin Slonaker and Clara S. Stoltenberg, assistant professors; and Frank Walter Weymouth, laboratory assistant. Mr. John Floyd Pruett, Miss Ethel Watters and Mr. Carl Schaupp were employed as mechanical assistants.

In the following table of statistics the numbers by which the courses are designated are those used in the Register for 1909-10, to which reference may be made for explanation of the character of the courses:

INSTRUCTOR	COURSE	Unit Hours	Hours per Week		Attend- dance	
			Lec.	Lab.	1st Sem.	2nd Sem.
Jenkins, Slonaker, Weymouth ..	1. General Anatomy and Physiology	6	2	5	60	53
Jenkins, Slonaker	2. Physiology of Blood Cir- culation, Muscle	3	1	5	17	..
Jenkins, Slonaker	3. Physiology of Digestion, Respiration, etc.	3	1	5	..	18
Stoltenberg ...	4. Structure of the Ner- vous System	3	1	5	21	..
Stoltenberg ...	4b. Structure of Nervous System(Adv. Course)	2	..	6	..	3
Stoltenberg ...	5. Histology of the Ner- vous System	3	1	6	..	19
Jenkins, Weymouth ..	6. Physiology of Nervous System and Sense Organs	3	1	5	6	..
Slonaker	7. The Vertebrate Eye ..	2	..	6	..	1
Jenkins	8. Advanced Physiology ..	3	1	9	8	8
McFarland	9. Histology	3	1	6	24	26
McFarland	10. Histogenesis	3-5	..	9-15	2	..
McFarland	14. Special Histology	2-3	..	6-9	6	2
Department ...	15. Journal Club	1	1	..	19	16
McFarland	17. Research in Histology..	3-5	..	9-15	2	2
					165	148

RESEARCH WORK

Professor McFarland has continued his work on Opisthobranchiate Mollusca of South Pacific, California and Japan.

Dr. Slonaker has published in Proceedings of the Indiana Academy a paper entitled "Observations on Cerebal Localization," and in *Science*, a review of Eigenmann's "Eyes of Cave Vertebrates of North America." He has also two papers nearing completion, embodying the results of four years continuous experimentation, one on the normal activity of the white rat from birth to death due to old age; the other on the influence of diet on its growth, activity and longevity.

Assistant Professor Stoltenberg has continued her investigations on the nerve tracts in the brain and cord.

Miss Harriet E. Twombly, a student, worked upon the cytology of certain parasitic infusoria in termites.

Mr. J. R. Oliver, a student, worked upon the Spermatogenesis of the fur seal, *Callorhinus alascanus*.

OLIVER PEEBLES JENKINS,
Professor of Physiology.

HYGIENE

The tabulated statistics of the department for the year are given in the accompanying table:

INSTRUCTOR	COURSE	Hours per week	Unit Hours	Attendance	
				1st Sem.	2nd Sem.
	GENERAL EDUCATION COURSES				
Long, Maloney, Townsend, Davis	1. Personal Hygiene Gymnasium	3 Gym.	1	Men 329 Women 82	288 67
	2. Public Health ...	2 Lect. 2 Lab. 2 Libr.	2	19	28
	DEPARTMENT COURSES				
Snow, Randall.	3. Industrial Hyg....	9 Libr. and Rec.	3	29	
Long, Bolton..	4. Physical Training	3 Lab.	1-2	Men 12 Women 2	13 3
Snow, Randall.	5. Epidemiology....	9 Libr. and Rec.	3		40
				473	439

The personnel of the Department of Hygiene for 1909-10 consisted of Associate Professor William Freeman Snow, Instructors Royce Reed Long and Harry Wilfred Maloney, Acting Instructors Florence Bolton and Vera Townsend, and Assistant W. R. D. Randall. The following were gymnasium assistants in the department during the year: E. G. McCann, A. F. Meston, J. P. Crawford, F. H. Hilton and J. H. Wiggins.

Associate Professor Snow was absent on leave during the year, as Secretary of the California State Board of Health. Acting Instructor Vera Townsend was absent on leave during the second semester, and her place was temporarily filled by the appointment of Miss Edna Grace Davis and Miss Lotita Corella as assistants.

Associate Professor Snow has had his leave of absence extended through the coming year. Miss Vera Townsend will continue her connection with the Sacramento High School for another year, and Miss Florence Bolton will be absent during 1910-1911.

The gymnasium athletic fields make a valuable addition to the gymnasium equipment. There is great need for more commodious dressing and locker rooms in both gymnasium buildings. There is also need for more and better paid gymnasium assistants. Both of these things must be possible if the department is to accomplish the results desired for this part of its work.

ROYCE REED LONG,
Assistant Professor of Hygiene.

ZOOLOGY

The faculty of the department consisted of Charles Henry Gilbert, George Clinton Price and Harold Heath, professors; John Otterbein Snyder, Edwin Chapin Starks and Walter Kenrick Fisher, assistant professors, and Willis H. Rich, laboratory assistant.

Professor Gilbert continued studies on the bathybial fishes of Japan and Bering Sea, and on the life histories of the steelhead trout and the salmon of the Pacific coast.

Professor Heath was engaged on a report of the *Solenogastres* from the Western Atlantic.

Assistant Professor Snyder continued investigations on the shore-fishes of Japan, and completed papers on "The Fishes of Okinawa," one of the Riu Kiu Islands, and on "Japanese Shore Fishes" collected by the *U. S. S. Albatross*, Expedition of 1906.

Assistant Professor Starks was engaged on a report on the fishes of Puget Sound, and investigated further the osteology of the scombroid fishes.

Assistant Professor Fisher continued work on North Pacific star-fishes, and published four papers dealing with new genera and species within this group.

The following courses of instruction were given :

INSTRUCTOR	COURSE	Unit Hours		Attendance	
		Lect.	Lab.	1st Sem.	2nd Sem.
Price, Fisher..	1. Elementary Zoology....	1	6	60	42
Heath	2. Invertebrate Anatomy..	1	6	10	10
Heath	3. Invertebrate Embryology	1	5	...	3
Heath	4. Invertebrate (Adv.)....	..	6-9	5	2
Snyder.....	5. Vertebrates (Class)....	1	6	7	4
Snyder.....	6. Comp. Anat. Vertebrates	..	9	9	7
Price	7. Vertebrate Embryology.	1	5	20	6
Starks	8. Ichthyology .....	..	6-9	3	4
Gilbert	9. Ichthyology (Adv.)....	..	6-15	2	2
Gilbert	10. Journal Club	2	..	8	6
Snyder	11. Vertebrates (Adv.)....	..	..	2	1
Snyder	12. Comp. Anat. Vert. (Adv.) .....	..	..	...	1
				126	88

Investigations by students in the department resulted in the preparation of papers, as follows :

S. Stillman Berry, "Diagnosis of New Cephalopods from the Hawaiian Islands."

Helen Flickenger, "The Anatomy and Relationships of a New Species of Pteropod."

Eleanor Foshay, "The Anatomy of *Fissurella volcano*."

William F. Thompson, "The Larval Shell of *Acmaea*."

During the year the labor of tagging the large collection of fishes in the Zoological Museum was completed. Each specimen now bears a small tin tag stamped with a number corresponding with the museum record. This not only adds materially to the working value of the collection, but also insures it against a loss similar to that suffered during the earthquake of 1906. The following additions were made to the collections: The E. B. Towne, Jr., collection of 1260 bird skins, presented by Mrs. E. B. Towne, Jr.; about 800 specimens of British Guiana fishes, obtained in exchange from the Carnegie Museum; and many smaller gifts of specimens added from time to time.

CHARLES HENRY GILBERT,
Professor of Zoology.

ENTOMOLOGY AND BIONOMICS

The faculty of the department in 1909-10 was composed of Vernon Lyman Kellogg, professor; Mary Isabel McCracken, assistant professor;

Rennie Wilbur Doane, assistant professor and curator; Walter Kenrick Fisher, acting instructor in Bionomics; W. M. Mann, E. W. Rust, and W. M. Davidson, assistants; with David Starr Jordan as lecturer on Bionomics. The number of major students was thirteen, of whom three were graduate students.

The courses given were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
McCracken ...	1. Elementary Ent.	3	17	34
McCracken ...	1a. Morphol. and Physiol. of In- sects	3	2	7
McCracken ...	2. Class. and Devel. of Ins.....	2 or 4	4	4
Doane	3a. Economic Ent. Orchard and Garden	2 or 3	..	4
Doane	4. Economic Ent. Coccidae	2 or 3	9	..
Doane	4a. Special. ....	..	..	6
Kellogg	5. General Entomology	1	..	20
Kellogg	6. Insects and Disease	1 or 2	..	23
Kellogg	7. Advanced Work	2 or 5	5	10
Jordan and Kellogg	8. Organic Evolution	1 or 2	105	62
			142	170

The investigations carried on during the year were:

By Professor Kellogg, on heredity and variation in the silkworm, *Bombyx mori* (tenth year); on determinate variation in *Diabrotica* (9th year); on the Mallophagous parasites of birds. By Assistant Professor McCracken, on the heredity of sporting melanism in silkworms (6th year); on the flight function in the silkworm, *Bombyx mori* (results published); on the heredity of bivoltinism in silkworms (6th year, results published). By Professor Doane, on the work of injurious insects in the smelter smoke region of Shasta County; on the classification of the Tipulidae. Professor Doane spent the summer in the Pathological Station of the University of California at Whittier, assisting in the investigations of insects affecting citrus fruits.

Recent graduates of the department have received appointments as professional entomologists in connection with mosquito sanitation in California, control of citrus fruit pests in California, and in the service of the United States Bureau of Entomology.

The principal additions to the department equipment during the past year were: One Leitz Binocular microscope; one Leitz Micro-tessa photographic objective, and six dozen insect cases.

The principal books added were: complete sets of the *Annales et*

Memoires de la Societe Entomologique de Belgique; Horae Societatis Entomologicae Rossicae; and the Entomologist (London).

The pressing need of the department is a vivarium or insectary for the better carrying on of certain lines of work connected with the study of insect biology and economic entomology. Such an insectary is becoming indispensable for the proper development of the work of the department.

VERNON LYMAN KELLOGG,
Professor of Entomology.

GEOLOGY AND MINING

The department faculty for the year 1909-10 consisted of Professors John Casper Branner, James Perrin Smith, John Flesher Newsom, and James Farley McClelland; Assistant Professors Austin Flint Rogers, Galen Howell Clevenger, David Morrill Folsom, and Luthur William Bahney; and Assistants Welton Joseph Crook, Hugo Edmund Kramm, John R. Pemberton, Donald Steel, and Arthur Fay Taggart.

Professor Newsom was absent on leave for the year, engaged in private practice. Professor McClelland resigned at the end of the first semester to accept a position in the Mining Department at Yale, and Assistant Professor Folsom was appointed on March 1st to fill this vacancy.

The following additions to the equipment of the department were made during the year:

In Mining: Models from Richard Braun of Freiberg, Saxony, illustrating foreign practices in mining, timbering, and ventilating. Models of mine cars, cages, skips, etc., exemplifying American practice, were also purchased. Large models of headframes for vertical and inclined shafts were built by Mr. T. N. Turner and are in the museum room of the department. Machinery purchased for class illustration included one 48 inch sheave wheel, one ore bucket, and one stoping drill.

In Geology: There has been added one Bausch microscope for paleontological work. Two hundred hand specimens and thin sections of serpentines and associated minerals have been donated by Mr. H. E. Kramm; a collection of silver minerals from Tonopah, Nevada, was given by Mr. S. C. Herold; rock specimens and thin sections from Rawhide, Nevada, by Mr. H. W. Turner; and miscellaneous California rocks and minerals by Mr. Harold Hannibal. Mr. H. W. Turner also presented twenty-three volumes of the American Geologist and numerous pamphlets and separates. A study collection to illustrate occurrence, association, and origin of minerals has been started for the use of students.

In Metallurgy: A roller agitator, mounted on a special table and operated by a water motor, the design of Mr. G. H. Clevenger, has been provided. Other items of equipment are: A positive pressure blower operated by water motor; a lighting circuit throughout the laboratory;

a circuit for hot plates and small electric furnaces; an electric hot plate; equipment of a special room for metallography, calorimetry and operation of small electrical furnaces; fifteen drawings and water color sketches on heavy detail paper to illustrate lecture courses.

The following gifts in the Metallurgy division should be noted:

100 pounds of Mexican graphite, from U. S. Graphite Company, Saginaw, Michigan; 3 ore samples from Charles Butters & Co., Virginia City, Nevada; samples of Alaskan gold ore, containing antimony, from J. F. Newsom, Palo Alto, California; samples of silver ore containing manganese, from Creston-Colorado Co., Torres, Mexico; two samples of silver-gold precipitates, from the same company; samples of silver-gold precipitates, from Dolores Mines Co., Madera, Mexico; from El Rayo Mining Co., Santa Barbara, Mexico; and from Butters Divisadero Co., San Salvador, C. A. Samples of concentrates were received from Midas Mining Co., Knob, California. Three large framed photographs were presented by the Pacific Tank Co., San Francisco, California.

In Paleontology: A set of invertebrate fossils and fossil fishes was purchased to fill out the teaching collection; also a set of characteristic European fossils from France. The following gifts in this division may be noted: A collection of fossil leaves by Mr. J. S. Hook; a collection of tertiary fossils by Mr. J. O. Lewis; a large collection of fossils from Ventura County made by the University Geological Survey under Mr. J. R. Pemberton.

Mr. J. P. Smith has continued his researches in the paleontology of the triassic formation for the U. S. Geological Survey; he spent two weeks in field work in Shasta County, California, and four weeks in Idaho. He lectured on geology before the Yosemite Valley Chautauqua.

Mr. A. F. Rogers spent most of the summer vacation in preparing a textbook on mineralogy, making a short trip to Shasta and Siskiyou Counties, studying and collecting minerals. He has devised a specific gravity balance for laboratory use, by means of which the specific gravity of a mineral may be read off directly on the beam.

Mr. G. H. Clevenger made a study of the methods of copper smelting in Shasta County during the Christmas vacation. In the summer vacation he did experimental work upon the treatment of gold ore containing graphite, from Shasta County, and upon gold-silver ore, from Caliente, California. He has also conducted experiments on the treatment of the complex cobalt, nickel, silver ores of the cobalt district, Canada, and is at present investigating the effect of manganese upon the treatment of silver ores. He read a paper before the San Francisco section of the American Chemical Society upon the "Electro-metallurgy of Iron and Steel," and has in process of preparation papers on the "Recovery of Gold and Silver from the Iron-Copper Mattes of Sulphide Smelting," the "Determination of the Alkalinity in Cyanide Mill Solutions," and "Analyses of Cyanide Precipitates," which have already been accepted for publication.

The following table shows the courses given in the department during the year and the attendance of students:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Branner	1. Elementary Geology	3	175	...
Branner	1a. Physiography	1	...	36
Branner	2. Economic Geology	2	...	55
Pemberton, Macready ...	3. Topographic Geology	4	...	25
Pemberton, Macready, Parsons ...	4. Field Geology	5	...	25
Rogers, Kramm	5. Mineralogy	3	39	36
Rogers	6. Petrography	2	22	19
Smith	7a. Paleontology	4	15	...
Smith	7b. Historical Geology	4	...	29
Smith	8. Paleontologic Research	2-5	3	2
Rogers	9a. Crystal Morphology	1-3	4	...
Rogers	9d. Paragenesis of Minerals.....	2	...	5
Rogers	9e. Chemical Mineralogy	2	...	2
Smith	10. Advanced Paleontology	2	...	6
McClelland ...	Mining 1a.—Mining Methods.....	4	7	...
McClelland ...	Mining 1b.—Mining Methods.....	3	6	...
McClelland, Taggart	Mining 2.—Mine Plant.....	3	...	5
Clevenger, Bahney	Mining 8.—Metallurgy Lectures..	4	...	22
Clevenger, Bahney, Crook	Mining 9.—Metallurgy Laboratory	2	...	9
Clevenger	Mining 10.—Metallurgy of Iron and Steel	2	60	...
Clevenger	Mining 11.—Metallurgy	3-5	...	1
Clevenger	Mining 12.—Metallurgy Labora- tory	3-5	9	4
			340	281

Mr. L. W. Bahney has been engaged upon the design of special apparatus for pyrometric work in the field. At the annual meeting of the American Chemical Society in San Francieco he read a paper on a "Rapid Method for the Determination of Available Calcium in Lime used in Cyanide Work." He is at present engaged in the design of a rotary flame assay furnace.

Mr. J. R. Pemberton has made a study of the stratigraphy and paleontology of the Ventura folio, and has in preparation a paper on this subject for the U. S. Geological Survey. He also made a study of the geologic

and economic conditions of the oil industry in Kern County, California, during April and May.

Mr. Harold Hannibal has been engaged in investigations on the relations between the living and tertiary fresh-water invertebrate faunas of the West Coast, and has prepared for publication the chapter on fresh-water mollusca for the new edition of Keep's "Manual of West Coast Shells."

Mr. H. E. Kramm, assistant in mineralogy, completed his Master's thesis on the serpentines of the central coast ranges of California, which has been published in the Proceedings of the American Philosophical Society of Philadelphia.

JOHN CASPER BRANNER,
Professor of Geology.

MECHANICAL ENGINEERING

The teaching force in the department for the year 1909-10 was as follows: William Frederick Durand, Professor of Mechanical Engineering; Guido Hugo Marx, Professor of Machine Design; William Rankine Eckart, Associate Professor of Experimental Engineering; Everett Parker Lesley, Assistant Professor of Mechanical Engineering and Superintendent of Shops; Lawrence Edminster Cutter, Instructor in Drawing; Charles Norman Cross, Instructor in Experimental Engineering; Frank Oakes Ellenwood, Instructor in Experimental Engineering; Robert Long Daugherty, Instructor in Mechanical Engineering; Edward John Stanley, Instructor in Woodworking and Pattern Making; James Bennett Liggett, Instructor in Foundry; Theron James Palmateer, Instructor in Machine Shop; Robert Henry Harcourt, Instructor in Forge Shop.

During the first semester, 1100 student credit hours of instruction were given by 11 instructors, or an average of 100 per instructor. The similar figures for the second semester are a total of 1232 student credit hours, and an average per instructor of 112.

The work of the year was carried out in accordance with the regular program, except for some changes made necessary by the absence of the head of the department on leave from March 1st to the close of the academic year. By some redistribution of work for the second semester and the exchange and substitution of a considerable amount of problem and written work for the last two months instead of lecture work the courses given by the head of the department were safely left in charge of an instructor, and the work of the year in this manner suffered the minimum of derangement incidental to the absence above noted.

During the entire year, Professor Eckart was absent on sabbatical leave, and the work in the mechanical laboratory was temporarily in charge of Instructor Cross, aided by Messrs. Ellenwood and Daugherty, the latter appointed for the year on account of Professor Eckart's absence.

The classes taught and numbers in attendance are shown by the following tabular presentation:

INSTRUCTOR	COURSE	Kind of Work	Hours Credit	Atten- dance	
				1st Sem.	2nd Sem.
Harcourt	1a, 1b	Lect. and Shop	1 to 3	67	68
Liggett	3a, 3b	Lect. and Shop	1 to 3	48	42
Stanley	5, 6a, 6b	Lect. and Shop	1 to 3	79	52
Palmateer	7a, 7b, 8	Lect. and Shop	1 to 3	35	40
Lesley	9.	Lecture	1	..	11
Cutter	11. El. Mach. Drawing	Drawing	2 or 3	61	56
Marx, G. H. ...	13a. El. Mach. Design..	Lecture	3	..	41
Marx, G. H. ...	13b. El. Mach. Design..	Drawing	2	..	41
Marx, G. H. ...	14. Machine Design.....	Lect. and Draw.	4	15	12
Marx, G. H. ...	15. Machine Design	Lect. and Draw.	5	5	..
Marx & Cutter.	16. Adv. Machine Design	Lect. and Draw.	3	10	9
	21. Calibration and Use of Engineering Apparatus	Lect. and Lab..	3	..	23
	22. Testing of Engines and Boilers	Lect. and Lab..	3	24	..
Cross	23. Testing of Pumping Machinery, Power Plant Auxiliaries. etc.	Lect. and Lab..	3	..	9
Ellenwood	24. Abridged Course in Experimental En- gineering	Lect. and Lab..	..	12	38
Daugherty.....	25. Advanced Course in Experimental En- gineering	Laboratory	1 to 5	5	..
	31. Heat Engines	Lect. and Office Work	2	22	..
	33. Heat Engines	Lect. and Office Work	3	58	24
	34. Thermodynamics ...	Lecture	1	..	10
Durand	35. Power Plants	Lecture	2	27	..
	36. Pumping Machinery.	Lecture	2	..	63
	37. Seminary	Lecture	1	12	7
				480	546

The general development of the work in the various branches of the Department of Mechanical Engineering has followed along lines similar to those discussed in previous reports, and further progress has been made in developing and co-ordinating the various lines of work in the department.

The general policy of adding some valuable definite item of equipment in the shops and laboratories has been followed by the purchase of a new

air compressor for the laboratory, a new motor driven crane for the foundry, and a new lathe for the machine shop.

The general needs of the department include further additions to the teaching force to cover important lines of work and further large additions to the equipment in the shops and laboratories in order to render such instruction most effective.

WILLIAM FREDERICK DURAND,
Professor of Mechanical Engineering.

CIVIL ENGINEERING

The teaching staff of the department for the year 1909-10 consisted of Professors Charles D. Marx, Charles B. Wing, John C. L. Fish; Instructors John H. Foss and Charles Moser; Assistants Clarence E. Blee, John E. Elliott, Herman Endres, Valentine R. Garfias, Ralph L. Hughes, Joseph A. Killian, Robert E. Millsap, Homer J. Sharp, Sidney B. Shaw, Nelson Taylor, Burchell W. Upson, and Romney L. Vaughn.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Foss and Assistants ...	1a. Linear Drawing and Lettering	1	134	...
Foss and Assistants ...	1b. Desc. Geometry	1-4	173	139
Fish and Assistants ...	4a. Elementary Surveying	5-5	44	34
Fish and Assistants ...	4b. Elementary Surveying	2	47	...
Fish and Assistants ...	6b. R. R. Location.....	2	21	...
Fish and Assistants...	6a. R. R. Surveying.....	5	...	50
Fish	6c. R. R. Construction.....	2	...	22
Wing and Moser	2a. Mech. of Materials.....	5	94	...
Foss	8a. Elements of Design	3	45	...
Wing and Moser	8b. Elements of Design	5	...	47
Wing and Moser	8c. Elements of Design	3	...	5
Wing	9. Railroad Bridges	5	35	27
Wing	Special Building Design.....	3	...	2
Hoskins	36. Hydraulic Motors	3	49	...
Hoskins	Eng. 3a. Hydraulics	3	...	82
Marx	12. Water Supply	5	34	...
Marx	Special, Water Supply.....	5	1	2
Marx	13. Sanitary Engineering	5	...	32
			677	442

The courses tabulated on page 56, with attendance as indicated, were given in the department.

The needs of the department in the matter of laboratories, fairly equipped, have been emphasized in former reports.

CHARLES DAVID MARX,
Executive Head.

ELECTRICAL ENGINEERING

The personnel of the department during the university year that closed July 31, 1910, was made up as follows: Harris Joseph Ryan, professor; Samuel Barclay Charters, Jr., assistant professor; William Arthur Hillebrand, instructor.

The lecture, laboratory and class instruction, and the corresponding number of students in attendance, are given in the following table:

INSTRUCTOR	COURSE	Lec- tures	Class	De- sign	Labor- atory	Attendance	
						1st Sem.	2nd Sem.
Charters, Hillebrand ..	1 a	3	..	..	1	53	..
Hillebrand	2a	1	..	..	..	14	..
Hillebrand	2a	..	4	..	..	..	15
Charters, Hillebrand ..	2b	..	..	..	4	..	15
Ryan	3a	3	..	..	..	17	..
Ryan	3a	5	..	..	..	..	15
Ryan, Charters, Hillebrand....	3b1	..	..	..	4	17	..
Hillebrand	3b2	..	3	..	..	17	..
Ryan	3c	..	..	4	..	..	15
Ryan, Charters, Hillebrand ..	3d	..	1	..	..	..	15
Charters	4	2	..	..	..	..	22
Charters	5	2	..	..	..	..	28
						118	125

The program of proper organization of the laboratory equipment and schedule of experiments begun in 1905 is now substantially complete. In the immediate future the energies and resources of the department applicable to laboratory facilities will be employed in amplifying our facilities for instruction in the electrical principles and phenomena that occur in the uses of high-tension currents for long-distance transmission of power, and the continuation of the development of facilities for standardizing equipment for electrical measurements and acceptance tests.

During the second semester the senior classes in Electrical and Mechanical Engineering, under the direction of their corresponding officers of instruction, furnished the technical force that made the several "acceptance tests" of the 1910 oil fuel, turbo-alternator "stand-by" station at Oakland, California, of the Great Western Power Company. The work was all done voluntarily at week-ends, and without interruption of regular University duty.

Gifts were made to the University for the department as follows:

Sample insulator, employed on the first transcontinental telegraph line, presented by Mr. A. S. Kalenborn, Stanford, E. E., '02.

Aluminum Cell Lightning Arrester Element, presented by Mr. A. S. Jones, Electrical Engineer.

Exhibits of parts of incandescent lamps, illustrating their process of manufacture, presented by Mr. Charles C. Anthony, Palo Alto Electric Works.

Messrs. Charters and Hillebrand completed the first section of their investigation of "Some Phases of Transformer Regulation." Their paper, based on the corresponding results, was presented at the October 29, 1909, meeting of the San Francisco section of the American Institute of Electrical Engineers, and published in the January, 1910, Proceedings of the national body, A. I. E. E.

In anticipation of the needs of the high-tension section of our laboratory, Mr. Ryan developed the cathode ray power diagram indicator as a satisfactory means for studying the losses of power into the atmosphere that occur from transmission lines when operated at electric pressures upwards from 75,000 volts. His paper reporting to the profession thereon has been accepted by the national body of the American Institute of Electrical Engineers, to be presented at a regular meeting, and to be published in the Transactions of the Institute.

The following electrical engineers from practice most generously responded to the invitation of the department to visit Stanford University for the purpose of addressing our students. The department employs this opportunity to express to these gentlemen a hearty appreciation of their valuable coöperation:

Mr. Ralph W. Pope, Secretary American Institute Electrical Engineers: Organization and Duties of the A. I. E. E.

Mr. Charles F. Scott, Consulting Engineer, Westinghouse Electric and Manufacturing Company, Pittsburg, Pa.: Manufacturers' Experience with Electrical Engineer Graduates.

Mr. F. V. T. Lee, Stanford, E. E., grad. class of 1901, Assistant General Manager, Pacific Gas and Electric Company: The Making of an Engineer.

Mr. Paul M. Lincoln, Electrical Engineer, Westinghouse Electric and Manufacturing Company, Pittsburg, Pa.: The Attitude of the American Institute of Electrical Engineers toward the College Student.

Mr. A. G. Jones, Electrical Engineer, General Electric Company, San Francisco: Lightning Arresters.

Mr. W. J. Davis, Jr., Chief Engineer, Pacific Coast, General Electric Company, San Francisco: Steam Turbines.

Mr. J. H. Klinck, Commercial Engineer, Westinghouse Electric and Manufacturing Company, Pittsburg, Pennsylvania: Standarization of Electric Motor Practice.

Mr. Edgar S. Bloom, General Superintendent of Plant, The Pacific Telephone and Telegraph Company, San Francisco: The Telephone Wire Plant.

Mr. A. L. Alvord, Electrical Engineer, General Electric Company, San Francisco: The Testing Department of the General Electric Company in Relation to the Engineer Graduate.

Mr. C. E. Spaulding, Stanford E. E., '07, Sales Engineer, General Electric Company, San Francisco: The First Experiences in Practice of an Electrical Engineer Graduate.

Mr. J. G. De Remer, Electrical Engineer, Westinghouse Electric and Manufacturing Company, San Francisco: The Engineer Apprenticeship System of the Westinghouse Electric and Manufacturing Company.

HARRIS JOSEPH RYAN,
Professor of Electrical Engineering.

MEDICINE

The work of instruction in Medicine in Stanford University was formally inaugurated September 8, 1909, by a University Assembly, at which the principal address was delivered by Dr. Henry Christian, Dean of the Harvard Medical School. Dr. Henry Gibbons, Jr., Dean of Cooper Medical College, and professor in this department, presented a history of medical education upon this coast, and of the development of Cooper College; and an introductory address was delivered by the President of the University.

At the beginning of the past year, twelve students were registered in Medicine, and during the year fifteen altogether were enrolled. Of these, seven had already received the bachelor's degree from Stanford University, one from Oxford University, and one the degree of Ph. D. from Zurich, while the other six had completed the three years of undergraduate work in the University required as a minimum qualification for enrollment in the Medical Department. Of the fifteen, seven entered with all special requirements fulfilled, while eight were admitted with minor deficiencies in physics, biology or chemistry. Of these, six had by the close of the year completed these deficiencies by work taken in the regular classes of the University.

The teaching staff has been augmented by the appointment of Dr. Hans Zinsser as Associate Professor of Bacteriology, Dr. Albert C. Crawford as Professor of Pharmacology, Dr. Frank E. Blaisdell as Assistant Professor of Applied Anatomy, Dr. Ernest C. Dickson as Assistant Professor of Pathology, and Mr. R. M. Lhamon as Instructor in Anatomy. The duties of Professor Zinsser, Professor Crawford and Instructor Lhamon began with the opening of the current year, 1910-11, while the duties of Professor Blaisdell and Professor Dickson will begin with the second semester of the year.

The equipment for the work in Anatomy, Pharmacology and Bacteriology has been provided for by continuation of the reconstruction of the rear line of the old museum buildings. This work is not yet quite completed, but when finished will furnish efficient and convenient laboratories and equipment for those divisions of the work.

In May, 1910, Bacteriology was, by action of the Board of Trustees, made a separate division, and Professor Zinsser was appointed executive, while Professor Ophüls remains as executive of the Pathology and Legal Medicine.

The prospect of attendance for the second year of the Medical School is that, of the fifteen students in attendance last year, seven will continue their course here, the others having gone to eastern schools to continue their courses, or having for other reasons discontinued their medical course. The incoming class consists at present of ten students, a number which is likely to be increased somewhat but not greatly during the year. Until the work of the department is fully developed, and its reputation for first-class work throughout the course established, no considerable increase in student attendance can be expected.

The expenses of maintenance and equipment of the work of the department for the ensuing year, exclusive of the cost of reconstruction of the laboratory buildings, will by careful economy probably be kept within the appropriation made by the Board of Trustees, with addition of fees received from students. For the year following, and to a still greater degree for the succeeding year, it is manifest that the cost of maintenance will necessarily exceed considerably the present income, if it is hoped to maintain the status of the department as expressed in the resolutions of the special committee of the Board of Trustees (November 1, 1906) "to maintain a department of medicine on a basis of scholarship and efficiency equal to that of the very best medical schools of this country."

To bring the teaching in the clinical departments in San Francisco to a basis such as now exists in the best medical schools, and commensurate with the work as already organized for the first two years of the course, will require a considerable expense over what can be expected from fees or from receipts from paying wards of the Lane Hospital. The Lane Hospital should itself, in so far as possible, be placed on the basis of a teaching hospital, and, while it may not be practicable at once to use

it entirely as such, that is the end which should be kept in view and attained at no distant day. In adequately fulfilling this purpose, its earning power as a paying hospital will be impaired.

Upon the question of the cost of maintenance of a modern medical school, recent progress in the best medical schools of the country has thrown much light since the problem of establishing a medical department was first considered by Stanford University.

I may be permitted to recall that, as a member of a special committee appointed by the Board of Trustees in 1906 to consider this problem, I addressed to the secretary of the Board and chairman of the committee a letter, dated October 17, 1906, from which I quote:

"I do not at present have an adequate idea of the cost of maintenance of a first-class medical department, but from what I know thus far I should consider that the President's estimate of \$100,000 per annum within a few years, is conservative."

Though that estimate at that time may have been considered larger than justified by the available statistics from many high-grade medical schools, yet the recent rapid development of medical education appears to have justified the estimate as it applies to the present and immediate future of medical education. The recent Bulletin (No. 4) of the Carnegie Foundation on Medical Education presents many data bearing on this problem. For instance, with respect to the five departments of Physiology, Anatomy, Bacteriology, Pharmacology and Pathology, estimated to cover the course of the first two years, it is shown from the experience of well-equipped schools "that the five departments of a properly organized school capable of handling 125 students in its first two years can hardly be properly sustained on a total budget of less than from \$50,000 to \$75,000 annually. If, now, the student pays \$150 a year for tuition, there will be an annual deficit ranging from \$31,250 to \$56,250 a year."

With respect to the last two years of the course, the situation is thus summarized:

"The modern medical establishment that spends \$50,000 to \$75,000 upon its fundamental laboratories will, if it is to be equally productive in clinical medicine, spend an equal sum on teaching and investigation during the last two years, quite apart from the current maintenance of hospital and dispensary."

Making the same allowance for students' fees as above for the first two years, this would make a total net expense for the four years of from \$62,500 to \$112,500, neglecting the expense of maintaining a hospital for teaching purposes, and supposing 250 students to be attending the four classes.

With respect to our own conditions, it should be taken into account that the work of the divisions of Physiology (including Histology) and of Physiological Chemistry, is taken care of in departments already

existing in the University before the Medical Department was established, and not dependent upon its appropriations, and that a very considerable saving is thus effected to the Medical Department in the way of salaries, laboratory and equipment expense for that work. What this saving means to the Medical Department may be inferred from the statements in the Carnegie Bulletin above mentioned that Johns Hopkins spends \$13,246 per annum, on Physiology and Physiological Chemistry, and that Cornell spends in Ithaca (with eighteen students) \$13,500 on Physiology and Pharmacology, and in New York City Cornell spends \$14,940 on Physiology. As to the basis of the above calculations, data from first-class schools are given in the Bulletin cited (pp. 134 and 135).

It is a matter of the utmost importance to the future of the Medical School, therefore, that endowments should be secured which shall materially increase the present income of the Medical Department. Such endowments or donations might take the form of endowments of the hospital, or hospital wards, the establishing of free beds for teaching purposes in the Lane Hospital, or the endowment of chairs of instruction in medical or surgical branches.

Meanwhile the work of the department must be supported, at an increased expense over that estimated for the ensuing year.

The Lane Library is also in need of assistance to bind, catalogue and properly care for its valuable collection of medical books and serials, pending the time when its endowment will become available through the eventual distribution of the estate of Mrs. Lane. It is very desirable that this library should be placed in good working order within the next two or three years, even should the construction of the Lane Library Building upon the lot provided for it be somewhat delayed.

JOHN MAXSON STILLMAN,
Acting Executive.

APPENDIX II

REPORTS OF COMMITTEES

COMMITTEE ON STUDENT AFFAIRS

At the opening of the University, in September, 1909, there was the usual mild hazing of freshmen. Much of it indeed was accomplished before the men had actually matriculated. The committee was anxious that the students should of their own volition discontinue this custom. Student Advisor Roth was therefore advised of this fact, and asked to bring about the desired result through the University Conference of Men, or in any other way he preferred. In this matter the Conference did not respond as it was hoped it would, and at the beginning of the present year the hazing of freshmen has been more objectionable than ever. As a consequence announcement has been made by the Committee that such hazing will not be tolerated in future.

On many occasions, however, the Conference of Men has been found valuable, both in consultation, and as a medium of communication between this Committee and the larger body of students. In these directions it has made progress. The policy of the Conference as formally decided upon was not to undertake disciplinary action, but to confine its efforts to the prevention of affairs which might occasion necessity for such action.

During the year discipline has been imposed as follows:

DATE	NO.	OFFENSE	PENALTY
Aug. 31	2	Fraud in examination....	Suspension for one semester
Oct. 27	1	Fraud in examination....	Suspension indefinitely
Nov. 17	1	Fraud in class work.....	Suspension to Jan. 1
Dec. 15	1	Fraud in examination....	Suspension to June 1
Feb. 3	1	Immoral conduct	Suspension indefinitely
Mch. 7	1	Fraud in examination....	Suspension to September
Mch. 7	1	Permitting use of paper by another	Dropped from the class
Mch. 28	1	Use of offensive language in a public assembly....	Permanent suspension (suspended previously for other offenses)
Mch. 28	2	Use of liquor in Encina Hall	Suspended until September
Mch. 28	2	Use of physical violence toward a fellow student	Suspended indefinitely
Mch. 28	1	Exciting violence in an editorial	Required to vacate his ed- itorial position
May 14	1	Grossly immoral conduct.	Expelled
May 17	1	Fraud in examination....	Suspended indefinitely
May 17	1	Fraud in examination....	Suspended for one semester

In imposing the above penalties, suspension has been made for a semester, for an indefinite period, or permanent, in accordance with what the Committee judged the future conduct of the student would probably be.

During the year social events began to encroach upon the mid-week evenings, making necessary the adoption of a regulation restricting them to Friday and Saturday evenings.

On December 1, a regulation was adopted to the effect that no student should appear in more than one dramatic performance in any one semester. Some concessions were found necessary in the application of this rule in the case of events which had been in contemplation before the rule was made. The experiences of the year, however, confirmed the committee in the opinion that the regulation is a beneficial one.

On April 9, a death of a visitor to the University occurred from the capsizing of a canoe in Lagunita. After discussion with representatives of the owners of canoes, with the Students' Conference, and with representatives of the Boat Club, safety regulations governing the use of the lake were formulated and announced. These regulations restricted the use of canoes to good swimmers. Swimming was prohibited except within a prescribed area, and only at such times as life-saving appliances were at hand.

During the second semester a controversy arose among the students with reference to articles, appearing in the *Sequoia*, which charged unfair methods in conducting student politics and business. Some bitterness resulted. The faculty took no part in the controversy, until personal violence was done to the editor of the *Sequoia*. Then the two chief leaders in instigating this violence were suspended, and the editor of the *Daily Palo Alto*, whose editorial policy had incited personal violence, was required to vacate his position.

At many times since the opening of the University the need for special campus officers has been manifest, and the wisdom of employing such officers has been discussed. The following is an instance which illustrates this need: At a late hour one Sunday night during the year, a few students marched about the campus with a bass drum and other noise-making instruments. The windows of various houses were opened, and the volume of noise was increased by the addition of horns, gongs and shouting. In the end the din became so great that sleep was out of the question. When the noise had continued for twenty minutes or more (a long time for such an affair), a member of this committee found the leaders of the parade and stopped it. It was not, however, a task which a member of the instructing force should be compelled to assume.

In a community as large as that on the campus, made up chiefly of young people, and continually changing, the sense of responsibility is lacking. There are many matters on which the uninformed person needs information, and thoughtless persons need effective restraint. Among such matters may be mentioned the enforcement of boating and swimming regulations, the kicking of foot-balls and batting of base-balls on the fraternity lawns, to the annoyance of passers-by, and the blocking of cross walks and steps by students chatting and smoking between classes.

To check these matters, and to carry along from year to year a consistent policy regarding regulations, is essentially the work of a special officer. But officers, in order to serve the community in this matter, must be men of superior intelligence, informed as to University regulations and customs. Difficult as it is to secure such men, it is believed that they can be found, and that their employment would assist materially in placing good citizenship on the campus upon the same plane as elsewhere. This suggestion is not made in the belief that our students are unmanageable or less law-abiding than others, but in recognition of the fact that the campus community is without the ordinary municipal control and supervision. The committee therefore recommends the employment of two such special officers to have charge of order on the campus.

ARTHUR BRIDGMAN CLARK, Chairman.

COMMITTEE ON LITERARY CONTESTS.

The Committee for the year consisted of Professors Alden, Bassett, Krehbiel, Searles, and Seward.

Aside from the supervision of the usual literary contests, the Committee was called upon to arrange the regulations for a new competition—that for the Edward Berwick Junior Peace Prize, offered under the auspices of the California Peace Society. This prize, amounting to fifty dollars, is awarded to that speaker who, in a public contest, delivers the address which in the opinion of the judges is most effective in promoting the cause of international peace.

The Committee has also had under consideration the problem of inducing greater numbers of students to participate in the various literary contests. The interest generally shown in them has been comparatively slight. In the Bonnheim contest five premiums of \$25 each are offered for manuscripts, and the gaining of a premium entitles the winner to participate in the oral discussion and compete for a prize of \$125. Yet few manuscripts have been submitted. Objection has been raised that the themes announced for discussion in this contest have been of such a nature that students have hesitated to spend the time and energy necessary for preparation. This would seem to be supported by the fact that there were more contestants for the new Peace Prize, with its much smaller pecuniary reward, than for the Bonnheim Prize. With this in mind, in proposing the Bonnheim subject for this year, the committee endeavored to choose a subject which would involve less extensive reading and research in fields relatively unfamiliar to the students, and yet would provide no less severe a test of their powers of exposition.

While the winning of distinction in these contests should, in the opinion of the Committee, be a genuine and severe test of the abilities of the contestants, the tasks imposed should be of such a character as to invite effort of many serious-minded students. We are now endeavoring to bring about these conditions.

RAYMOND M. ALDEN, Chairman.

APPENDIX III

REPORT OF THE REGISTRAR

The number of students in attendance in 1909-10 was 1744. Of these 1135 had previously been in attendance, 609 were new students. As compared with 1908-09 there was an increase in old students of 2, in new students of 75, making a total increase of 77.

STATISTICS OF REGISTRATION, 1905-1910

	1905-06	1906-07	1907-08	1908-09	1909-10
Old students	1069	1155	1164	1133	1135
New students	717	513	574	534	609
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	1786	1668	1738	1667	1744
Percentage of old students					
returning	68.2	64.6	69.7	65.1	68.
From California	1341	1329	1438	1319	1364
From other states	445	339	300	348	380
Percentage outside Cali-					
fornia	24.2	20.2	17.2	20.8	21.8

AVERAGE AGE AT MATRICULATION

Graduates*	30.	29.7	28.7	28.3	28.2
Advanced standing	22.7	21.5	22.8	22.3	22.5
Freshmen	20.	19.9	20.4	19.9	20.2
Specials	24.1	25.	25.1	24.	23.7

*From other colleges.

AGE OF FRESHMEN AT MATRICULATION

Under 17	11	5	4	4	5
17-18	45	34	41	33	29
18-19	112	89	104	89	104
19-20	152	118	123	111	117
Over 20	161	161	135	143	145
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	481	407	407	380	400

STATISTICS OF ENTERING CLASS, 1909-10

	Number Entering	Number Returning 1910-11	Failed in Scholarship
From Colleges—			
Graduates	40	14 (35%)	3 (7.5%)
With advanced standing.....	120	77 (64.1%)	12 (10%)
Without advanced standing.....	15	16 (40%)	15 (20%)
	<hr/>	<hr/>	<hr/>
	175	97 (55%)	30 (11%)
From Normal Schools.....	15	6 (40%)	1 (6.7%)
From Preparatory Schools—			
On recommendation (wholly or mainly) :			
In full undergraduate standing.....	350	283 (80%)	49 (14%)
In partial standing.....	13	9 (70%)	1 (7.7%)
Wholly on examination:			
In full standing.....	5	4 (80%)	
In partial standing.....	1	0	
	<hr/>		
	371		
As special students.....	50	31 (62%)	10 (20%)
	<hr/>	<hr/>	<hr/>
	609	430 (70%)	91 (15%)

COMPARATIVE NUMBERS AT MATRICULATION

	1908-09	1909-10
From Colleges—		
Graduates	29	40
With advanced standing.....	90	120
Without advanced standing.....	18	15
	<hr/>	<hr/>
	137	175
From Normal Schools.....	11	15
From Preparatory Schools—		
On recommendation (wholly or mainly) :		
In full undergraduate standing.....	324	350
In partial standing.....	13	13
Wholly on examination:		
In full standing.....	4	5
In partial standing.....	2	1
	<hr/>	<hr/>
	343	384
As special students.....	43	50
	<hr/>	<hr/>
Total	534	609

CLASSIFICATION BY MAJOR SUBJECTS

	1906-07	1907-08	1908-09	1909-10
Greek	15	19	15	11
Latin	58	54	45	40
Germanic Languages	95	92	81	94
Romanic Languages	23	20	36	40
English	178	177	165	149
Philosophy	0	2	6	5
Psychology	6	4	3	3
Education	25	26	37	39
History	128	143	139	152
Economics	97	131	144	157
Law	299	295	37	86
Pre-Legal .....	..	..	211	189
Graphic Art	32	31	33	47
Mathematics	25	34	28	22
Physics	10	13	11	13
Chemistry	84	83	79	79
Botany	28	31	31	29
Physiology	64	53	55	70
Zoology	29	28	30	24
Entomology	12	11	9	13
Geology and Mining.....	126	123	127	100
Civil Engineering	146	185	169	196
Mechanical Engineering	73	66	63	69
Electrical Engineering	115	117	113	108
Medicine .....	..	..	..	15*
	1668	1738	1667	1744

*Including 6 also counted under Physiology.

DISTRIBUTION OF ENTERING CLASS, 1909-10

FROM COLLEGES, ETC.

Baker University	1	Edinburgh University	1
Bellevue College	1	Emory and Henry College....	1
Brigham Young University...	1	Fairmount College	1
Bucknell University	2	Franklin (Ind.) College.....	1
Butler College	1	Hamilton College	1
Case School of Applied Science	1	Hamline University	1
Colorado College	2	Harvard University	2
Columbia University	1	Haverford College	1
Cornell University	3	Indiana University	1
Dartmouth College	1	Iowa State College.....	1
Doane College	1	Johns Hopkins University.....	1

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Lake Forest University.....	1	Universtiy of Michigan	3
Marquette University	1	Minnesota	1
Mass. Agricultural College....	1	Nebraska	1
Mills College	2	Nevada	4
Monmouth College	1	New Mexico ..	1
Northwestern University	2	North Dakota..	1
Occidental College	8	Pacific	10
Ohio State University.....	1	Pennsylvania ..	1
Oregon Agricultural College..	1	So. California ..	17
Pomona College	18	Texas	2
Pratt Institute	1	Utah	1
Ripon (Wis.) College.....	1	Vienna	1
Rutgers College	1	Washington ...	3
Santa Clara College	5	Wisconsin	1
St. Lawrence University.....	1	Union Christian College.....	1
Smith College	2	Vassar College.....	3
Sorbonne, France	1	Waseda University	1
Syracuse University	1	Washington and Jefferson Col-	
Trinity College (Oxford).....	1	lege	2
University of Arizona	1	Washington State College....	1
California	9	Western Reserve University..	1
Chicago	7	Westminster College	1
Colorado	4	Westminster (England) Col-	
Denver	1	lege	1
Idaho	1	Woman's College (Baltimore)	2
Illinois	1	Yale University	2
Iowa	4	Yankton (S. D.) College....	1
Kansas	1		

FROM NORMAL SCHOOLS

Cedar Rapids (Ia.) State		San Jose State Normal.....	4
Normal	1	Utah State Normal.....	1
Chico State Normal.....	1	West Chester (Pa.) State	
Los Angeles State Normal...	2	Normal	1
New Mexico Normal School	1	Whitewater (Wis.) State	
Pennsylvania State Normal..	1	Normal	1
San Diego State Normal.....	2		

FROM PREPARATORY SCHOOLS

Alameda H. S.....	3	Bellingham (Wn.) H. S.	1
Alhambra H. S.	2	Berkeley H. S.	6
Annie Wright Seminary.....	2	Berkeley Prep. School	1
Arroyo Grande H. S.	1	Blair Academy	1
Azusa H. S.	2	Blees Military Academy.....	1
Bakersfield H. S.	2	Boise (Ida.) H. S.	2

Boones University School....	2	La Porte (Ind.) H. S.	1
Butte (Mont.) H. S.	1	Lebanon (Ind.) H. S.	1
Calif. Sch. Mech. Arts	1	Little Rock (Ark.) H. S.	1
Campbell H. S.	3	Lodi H. S.	1
Cañon City (Colo.) H. S....	1	Los Angeles H. S.	26
Castilleja School	4	Los Gatos H. S.	1
Chinook (Mont.) H. S....	1	Lowell H. S.	9
Cogswell Poly. H. S. (S. F.)	2	Lyceum (S. F.)	1
Colorado Springs (Colo.) H. S.	1	McKinley (Indianapolis) H. S.	1
Colton H. S.	3	Manzanita Hall	2
Corona H. S.	2	Marlborough School	2
Delta (Colo.) H. S.	1	Mercersberg Acad.	1
Denver (Colo.) (East Side)		Meriden (Conn.) H. S.	1
H. S.	1	Minneapolis (Minn.) H. S. ..	1
Denver (Colo.) (North Side)		Mission H. S. (S. F.).....	2
H. S.	1	Modesto H. S.	1
Denver (Colo.) Man. Train.		Monrovia H. S.	3
H. S.	1	Monterey H. S.	3
Dubuque (Ia.) H. S.	1	Morgan Hill H. S.	2
Durango (Colo.) H. S.	1	Mt. Tamalpais Mil. Acad....	2
Enid (Okla.) H. S.	1	Mountain View H. S.	1
Escondido H. S.	2	New York Mil. Acad.	1
Eureka H. S.	4	Notre Dame College.....	1
Evanston (Ill.) H. S.	1	Oakland H. S.	2
Everts (Wn.) H. S.	1	Oahu College (Prep.)	1
Fallbrook H. S.	2	Ogden (Utah) H. S.	3
Ft. Wayne (Ind.) H. S.	1	Ontario H. S.	1
Gas City (Ind.) H. S.	1	Orange H. S.	1
Gilroy H. S.	4	Palo Alto H. S.	26
Girls' Collegiate, Los Angeles	5	Pasadena H. S.	3
Girls' H. S. (S. F.)	4	Petaluma H. S.	1
Glendale H. S.	1	Philadelphia (Pa.) Girls' H. S.	1
Hamlin School	3	Phillips Exeter Acad.	1
Harker School	4	Pittsburgh (Central) H. S. ...	1
Harvard School (Los Angeles)	5	Placer H. S.	1
Hayward H. S.	2	Polytechnic H. S. (L. A.).....	16
Head's School	1	Polytechnic H. S. (S. F.)	2
Helena (Mont.) H. S.	2	Pomona College (Prep.)	1
Hemet H. S.	1	Pomona H. S.	2
Hill Mil. Acad. (Portland)...	3	Portland (Ore.) Academy	1
Hoitt's School	1	Portland (Ore.) H. S.	2
Hollister H. S.	1	Pueblo (Colo.) H. S.	1
Jackson (Ill.) H. S.	1	Redlands H. S.	4
Lake Forest (Ill.) Acad.....	2	Red Wing (Minn.) H. S.	1
Lakeport H. S.	1	Redwood H. S.	5

Richmond (Ind.) H. S.	1	Sterling (Ill.) H. S.	1
Riverside H. S.	3	Stevens Point (Wis.) H. S. ..	1
St. Helena H. S.	1	Stockton H. S.	3
St. Johns Mil. Acad.	1	Susanville H. S.	1
St. Margaret's School	1	Sutter H. S.	1
St. Matthew's School	2	Tacoma (Wn.) H. S.	7
St. Paul (Minn.) Central H. S.	1	Thatcher School	1
Salem (Ore.) H. S.	1	Throop Polytechnic	2
Salinas H. S.	3	Tulare H. S.	1
Salt Lake (Utah) H. S.	2	Ukiah H. S.	1
San Bernardino H. S.	1	University Pacific (Acad.) ..	1
San Diego H. S.	5	University H. S. (Chicago) ..	1
San Fernando H. S.	1	University School (Cleve-	
San Jose H. S.	19	land, O.)	1
San Luis Obispo H. S.	1	University School (S. F.) ...	1
San Mateo H. S.	1	University So. California	1
Santa Ana H. S.	1	Vallejo H. S.	3
Santa Barbara H. S.	6	Ventura H. S.	2
Santa Clara College Prep.....	1	Visalia H. S.	1
Santa Clara H. S.	5	Washburn School	4
Santa Cruz H. S.	3	Watsonville H. S.	5
Santa Monica H. S.	1	Waukegan (Ill.) H. S.	2
Santa Rosa H. S.	2	Weiser (Idaho) H. S.....	1
Selma H. S.	1	Westlake School (L. A.)	5
Shortridge (Indianapolis)		Whittier H. S.	2
H. S.	1	Wichita (Kans.) H. S.	1
Sioux Falls (S. D.) H. S.	1	Wilmington H. S.	1
Snell Seminary	3	Winters H. S.	1
Spokane (Wn.) H. S.....	2	Woodland H. S.	3
Starrett School (Chicago)	1	Yeates School	1

ON EXAMINATION.

College Entrance Examination Board and Stanford.....	1
College Entrance Board, Stanford, and University of California.....	2
Stanford and University of California.....	2
Yale and University of California.....	1

STATISTICS OF ENTRANCE EXAMINATIONS.
(Not including English.)

In August, 1908, the number of students taking entrance examinations was 128. Of these 6 were old students making up entrance deficiencies.

In August, 1909, the number of students taking entrance examinations was 130. Of these 6 were old students making up entrance deficiencies.

	August 1908			August 1909		
	Pass	Fail	Total	Pass	Fail	Total
Elem. Algebra	12	21	33	10	16	26
Adv. Algebra	3	16	19	1	10	11
Plane Geometry	12	18	30	11	24	35
Solid Geometry	4	10	14	1	5	6
Trigonometry	2	11	13	2	9	11
Physics	8	18	26	3	8	11
Chemistry	11	5	16	9	7	16
Physiology	2	11	13	4	4	8
Botany	1	3	4	1	0	1
Zoology	1	1	2	0	0	0
Ancient History	6	9	15	9	8	17
Med. and Mod. History	2	7	9	5	2	7
English History	4	17	21	7	10	17
American History	5	13	18	3	10	13
Elem. Spanish	1	4	5	1	2	3
Inter. Spanish	0	1	1	1	0	1
Elem. French	2	6	8	2	5	7
Inter. French	0	1	1	0	0	0
Adv. French	0	0	0	1	0	1
Italian	0	0	0	1	0	1
Elem. German	4	7	11	6	6	12
Inter. German	2	0	2	0	0	0
Adv. German	1	0	1	0	0	0
Elem. Latin	3	7	10	7	6	13
Adv. Latin	0	3	3	6	0	6
Elem. Greek	1	0	1	0	1	1
Freehand Drawing	3	21	24	8	18	26
Architectural Drawing.....	0	0	0	1	0	1
Mech. Drawing	18	5	23	21	7	28
Woodworking	31	11	42	12	18	30
Forge	22	13	35	10	6	16
Foundry	8	1	9	4	0	4
Machine Shop	9	0	9	7	0	7
Hygiene	0	4	4	0	4	4
	178	244	422	153	186	339

NUMBER OF SUBJECTS IN WHICH EXAMINATIONS WERE TAKEN BY THE
DIFFERENT CANDIDATES.

Of the 130 candidates for admission taking entrance examinations in August, 1909,
75 entered the University.
13 of these 75 entered as special students.

6 entered as regular students wholly on examination, but none wholly on Stanford examinations; 2 had taken Stanford and University of California examinations; 2 College Entrance Board, California, and Stanford examinations; 1 College Entrance Board and Stanford examinations; and 1 Yale and University of California examinations.

August, 1908.		August, 1909.	
No. of Subjects.	Candidates.	No. of Subjects.	Candidates.
1	44	1	44
2	22	2	35
3	17	3	19
4	11	4	13
5	8	5	9
6	4	6	3
7	10	7	1
8	8	8	2
9	1	9	2
10	2	10	2
11	0	11	0
12	1	12	0

REGISTRATION OF STUDIES.

Fifteen units constitute a normal semester's work. The following was the actual registration during 1909-10:

		Number of Students.	
		First Semester	Second Semester
For	1 unit.....	0	2
	2	2	3
	3	3	1
	4	2	2
	5	0	3
	6	7	3
	7	3	9
	8	11	9
	9	11	9
	10	16	29
	11	29	36
	12	56	54
	13	201	175
	14	260	238
	15	533	468
	16	256	233
	17	140	153
	18	80	110
	19	0	3
	20	0	2
Over	20	0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1909-1910.

	First Semester	Second Semester
Total number of petitions acted upon.....	917	606
To change registration by dropping sub- jects, or taking up new subjects, or both...	647	371
To change major subject.....	51	21
*To register for fewer than thirteen units.....	*112	†100
To register for more than eighteen units.....	4	6
For leave of absence.....	55	60
Miscellaneous	48	48

*Of these 112 petitioning for fewer than thirteen units, 52 are included in change of registration.
†Of these 100 petitioning for fewer than thirteen units, 38 are included in change of registration.

STATISTICS OF GRADUATION.

The total number of degrees conferred in 1909-10 was 293, distributed as follows:

	Ph. D.	J. D.	A. M.	Engr.	LL. B.	A. B.
Greek	1	..	1	..	..	3
Latin	1	..	2	..	..	9
Germanic Languages	1	..	2	..	..	20
Romanic Languages .....	..	..	..	..	..	2
English .....	..	..	3	..	..	30
Psychology .....	..	..	..	..	..	2
Education .....	..	..	4	..	..	9
History	1	..	4	..	..	21
Economics .....	..	..	2	..	..	20
Law .....	..	4	..	..	..	24
Graphic Art .....	..	..	..	..	..	5
Mathematics .....	..	..	..	..	..	1
Physics .....	..	..	1	..	..	3
Chemistry .....	..	..	1	..	..	19
Botany .....	..	..	2	..	..	4
Physiology .....	..	..	..	..	..	11
Zoology .....	..	..	1	..	..	2
Entomology .....	..	..	..	..	..	3
Geology and Mining	1	..	1	1	..	13
Civil Engineering .....	..	..	..	..	..	29
Mechanical Engineering .....	..	..	..	1	..	10
Electrical Engineering .....	..	..	..	..	..	18
	—	—	—	—	—	—
	5	4	24	2	..	258

In the case of the 258 students who received the degree of Bachelor of Arts the period of residence was as follows:

2 semesters	14
3 semesters	6
4 semesters	17
5 semesters	9
6 semesters	24
7 semesters	20
8 semesters	115
9 semesters	28
10 semesters	20
11 semesters	3
12 semesters	1
13 semesters	1
	<hr/>
	258

The 90 students who took their A. B. degree in less than four years were enabled to do this as follows ("extra courses," meaning courses in excess of the normal 15 units per semester).

Through advanced credit from other institutions.....	46
Through advanced credit supplemented by extra courses.....	24
Through advanced credit supplemented by summer work.....	2
Through advanced credit supplemented by summer work and extra courses	5
Through summer work and extra courses.....	5
Through credit for extra entrance units and extra courses.....	7
Through extra courses	1
	<hr/>
	90

FACULTY LEGISLATION

January 20, 1910, the Academic Council voted, in printing the annual *Register*, to conform to the recommendation of the Association of American Universities restricting the use of the term "course" to subdivisions of a subject; and to use the word "curriculum" in place of "course" in such expressions as a "four years' course of study," and the like.

In order to insure general uniformity of action among the various departments, the following statement concerning return of laboratory fees was adopted, the Department of Chemistry being specially exempted from its operation:

"Laboratory fees are ordinarily returnable as follows, when duly claimed in writing within two months after the date of withdrawal from the University: thus, the whole amount will be refunded when the student withdraws within one week of the beginning of a semester, and one half

the amount if the student withdraws before the middle of a semester; but no fees will be refunded on account of withdrawals after the middle of a semester, nor unless claimed in writing within two months after the date of withdrawal."

It was voted by the Executive Committee (February 17) that a day be specially designated in the calendar for the registration of graduate students, and that the Department of Hygiene be requested to relieve graduate students of the usual medical examination except as to vaccination.

The University regulation requiring that the last fifteen units for the Bachelor's degree be completed in the University was modified by the Council (May 20) as follows:

"In special cases students who have obtained at least ninety units of credit in resident work at this University, and who have completed all major department requirements, may be exempted from the general regulation regarding the last fifteen units."

On the recommendation of the Committee on Public Exercises, a rearrangement was made of the events of Commencement Week. In the interest of bringing together the more important events of the week with a view to increasing the attraction of Commencement for alumni and students, Commencement Day was placed on Monday instead of Wednesday, some of the events of Senior Week, such as the Promenade Concert and the Senior Ball, being allowed to follow the graduation exercises.

The Special Committee on University Organization, consisting of the members of the Executive Committee and of the Advisory Board, which had been appointed in May, 1909, carried on its deliberations throughout the year. Its report was presented to the Council at the meeting held May 20, 1910, and adopted. The report in full is given in Appendix IV. The primary work of the Committee concerned specific recommendations and suggestions which had been presented by the President. The results reached may be summarized as follows:

(1) A strong Graduate School is a necessary part of the University, but it is not practicable or desirable to create and maintain a graduate University except in combination with a strong undergraduate college.

(2) The elimination of the first two undergraduate years from this University is not feasible.

(3) The major department system as maintained at Stanford, with such modifications as experience may suggest, should be continued.

(4) The imposition of tuition fees upon undergraduates, is not desirable except as it may be necessitated by financial needs.

(5) Looking toward the future development of the University in prestige and service, special emphasis should be placed on advanced professional and graduate work. Ways and means of promoting this object should be considered further by a smaller committee specially selected for that purpose by the Academic Council from the full membership of the Council.

A re-statement of the major subject system formulated by the special committee was adopted by the Council and is included in Appendix IV. In general, the new formulation brings the definition of the system into correspondence with its actual working. It serves also to authorize and emphasize the more flexible features of the system as well as the duty of careful consideration and supervision of individual programs of study.

ORRIN LESLIE ELLIOTT,
Registrar.

APPENDIX IV

REPORT OF SPECIAL COMMITTEE ON UNIVERSITY ORGANIZATION

ADOPTED BY THE ACADEMIC COUNCIL, MAY 20, 1910

APPOINTMENT OF COMMITTEE

At a meeting of the Academic Council held April 6, 1909, President Jordan read certain tentative propositions looking toward a "possible reorganization of Stanford University on the Harvard plan." At the President's suggestion, this communication was referred to the Executive Committee. April 16, after discussion in the Executive Committee, the President expressed a desire to have the matter considered by a larger committee of the Council, and it was voted to recommend to the Council the appointment of such a committee. May 5, the President was authorized by the Academic Council to appoint a committee for this purpose, of which the members of the Executive Committee should form a part. May 13, the President completed the committee by naming the members of the Advisory Board to act with the members of the Executive Committee. In a letter of this date to the secretary of the Executive Committee, the President formulated some of the points to be considered. Later a more extended summary of the questions at issue was drawn up by the President and sent to the various members of the Special Committee. In a preliminary statement, the President said:

"It is impossible for the University to expect any great extension of scope or of expenditure in the next seven years, except through gifts, fees, or possible sale of properties. As this period will doubtless extend beyond the present administration, it is desirable to consider now very seriously how the University can be made most effective and most useful for this period. As to fees, it may be said that whatever is gained in money is lost through limitations of freedom to insist on standards, and through the elimination of students, earnest but impecunious."

ALTERNATIVES SUGGESTED BY THE PRESIDENT

The President suggested the consideration of a number of alternatives; in the matter of organization, the principal ones being:

(a) To leave the present status unchanged—a college with university attachment;

(b) To provide for the gradual elimination of the first two years, or the development on the Campus or off of a Junior College which should be made self-supporting;

(c) To reorganize all departments on a basis similar to that of the Law Department, with professional and technical courses two to four years long, beginning with the fourth year.

(d) To reorganize all departments on the Harvard plan, reducing the requirements for the A. B. degree to three or three and a half years, and making this degree prerequisite to admission to technical and professional courses.

In the matter of fees, the following:

(a) To leave the present system unchanged;

(b) To charge all undergraduates an equipment fee of from \$20 to \$50 per year;

(c) To charge undergraduates a tuition fee of from \$75 to \$150 per year, abandoning the partial release from taxation now granted by the State;

(d) To charge tuition fees in the Junior College only, making it partly or wholly self supporting;

(e) To charge tuition fees for the first three years only;

(f) To charge tuition fees for professional and technical work after the third year.

THE WORK OF THE SPECIAL COMMITTEE

The Special Committee met for organization September 21, and has held eleven meetings during the year. At the second meeting, an order of business was adopted and the principal subjects to be taken up for discussion defined as follows:

(1) Shall the University plan to build up its graduate and professional schools at the expense of the extent or cost of a well developed undergraduate school; or shall it look largely, as heretofore, to its own undergraduate to serve as feeders for its graduate departments?

(2) Shall the University anticipate the eventual elimination of the first two years of the present undergraduate course?

(3) Shall the work of the first two years be differently organized, as into groups of electives?

(4) Shall the requirements for the baccalaureate degree generally be arranged on a three-year basis?

(5) Apart from the financial needs of the University, is it desirable to impose tuition fees?

(6) If for any reason fees are to be collected from students, should these fees be uniform, or in proportion to the cost of instruction in the different courses, and against what classes of students should they be charged?

(7) In the light of such knowledge of the financial conditions and prospects as is possessed by the Committee, is any change in the present system of fees recommended?

In the discussions of the Special Committee, questions of organization have been considered primarily from the point of view of University policy. In view of the preliminary statement of the President, it has not been possible to eliminate financial considerations, but as far as might be, the two lines of argument have been kept distinct. Bearing in mind the restricted income of the University, the Committee has refrained from recommending measures or policies which, under present conditions and prospects, manifestly could not be carried out.

The Three Years' College Course.—The arguments for a three years' college course, as developed at Harvard, seem to be mainly two: first, the necessity that young men shall get an earlier start in professional life, and the belief, in view of greatly increased entrance requirements, that three years of college studies is a sufficient preparation for professional courses. Second, that in the case of those seeking only a general college education for purposes of personal culture, three years is better than four; it being economy both for the individual and for society, and in the matter of University endowments as well, that such students be given their degree, and to that extent encouraged to leave college, at the end of three years.

In considering these arguments, it is evident that the first does not obtain at Stanford, since there is no professional course which may not be entered upon at the end of the third year. Moreover, in the languages, history, economics, pure science, etc., there is no uniform point in the curriculum where advanced or specialized work may be marked off from elementary or general work. Again, under the system which Stanford has followed from the beginning, the fourth year brings to relative completion the definite undergraduate scheme of a department, and is important for the student who is not to continue his studies, as well as for the student who expects to follow out more advanced courses. As it is, nearly fifty per cent of our matriculates drop out before reaching the A. B. degree. The percentage of those who are lured on by the hope of a degree to stay longer than is profitable to them or to society may be considered as relatively small. To compress the major work now given in four years into three years would be possible in many departments, but presumably other studies deemed important would be crowded out, and in numerous cases the curriculum unduly narrowed. The argument that by cutting off outside activities and making requirements more stringent, four years' work as now planned could be actually accomplished in three years, is debatable; but the actual means of accomplishing this result are not evident.

The Elimination of the First Two Years.—The elimination of the first two years of the college course is based upon several propositions: A university can not cover the whole field of education. It must choose a restricted field and particularly it must decide where its emphasis and strength will be placed. A more or less natural division can be made between the first two and the last two years, the former being devoted to general college studies, the latter to advanced and specialized work. The University does not need to do the relatively elementary work of the first two years, which will be taken up by the six-year high schools and the colleges. The undergraduate tone given by the presence of the two lower classes, interferes with the serious purpose of real university work. It would be a great advantage to this work to be rid of all except those studying with a definite purpose, and in a strictly university atmosphere.

The arguments on the other side are mainly practical. The successful establishment of six-year high schools is a problem of the future. Upper-

classmen coming from six-year high schools and small colleges with limited equipment and endowment, would not be as well trained or as far advanced as those who begin their college work here. Departments would nominally begin with juniors and seniors but would really be under the necessity of giving them the work now taken by freshmen and sophomores. More than this, elimination of the first two years would mean to a considerable extent, elimination of junior and senior years also. The migratory habit among American undergraduates is not pronounced, and the University could not count on receiving any large number of students into junior and senior classes from strong institutions. Assuming that so radical a transformation of the University could be readily made, the building up of strong professional and graduate schools is not thereby made certain. In view of the geographical isolation of the University, and the strong competition of professional and graduate schools in other universities, Stanford could not hope to secure any large number of graduate students without very lavish expenditure. It may be considered doubtful, if not impossible, to build up a graduate department at Stanford, except on the basis of a strong undergraduate department.

Reorganization of the First Two Years.—Accepting the present four years of undergraduate work, there is still the question whether the first two years may not be reorganized to advantage. The plan considered at length by the Special Committee, proposed, in place of the present major department system, the establishment by the faculty of a general-course scheme, the details of which might be worked out by the faculty, or by departments acting under general regulations enforced by the faculty. The major subject system, as far as retained, would then begin with the third year; the first two years would be given up to general courses, resulting in the withdrawal from these years of special and advanced courses, the reduction of the number of courses open to first and second year students, and the establishment of general type courses which should accommodate at one and the same time three classes of students: (1) department majors who are to continue with the subject; (2) non-majors requiring a general basic knowledge of a subject as preparation for their own special lines of study; and (3) those seeking merely a broad education. This proposal was offered, first, as giving the student a broader foundation, a better all around training, and second, as presumably less expensive, thus allowing, without increase of income, larger emphasis to be placed upon advanced and graduate work.

The assumption that after the completion of twelve years of school work ending with a four years high school course, the student needs another two years, devoted to general courses only, before he may enter seriously upon the study of the thing he likes, is too vague and arbitrary to have general application. It is a recognized commonplace that the value to the student of any study comes only in part from the subject studied. The personality of the teacher and the way in which the student reacts

upon his subject, are important elements. If students are ready to pursue profitably certain studies in which they are interested, the reasons requiring them to mark time in those subjects until a certain arbitrary division is reached, ought to be made very clear. Moreover, it is only a doubtful advantage which transfers emphasis to advanced and graduate years at the expense of retarding the advancement of the student. One characteristic advantage of the major subject system is that it provides all reasonable opportunity for the varying needs and tastes of individuals. It places the student under the guidance and supervision of that group of instructors whose experience and interest are most closely connected with the line of study which for the time being he has chosen as his main interest. Such a system may be imperfect if the "guidance" in individual cases is neglected or carelessly or unwisely exerted; but it is yet to be shown that guidance of students in mass by any faculty committee can be made more efficient.

The Question of Fees.—The question of tuition fees may be considered under two aspects:

(1) Are tuition fees desirable apart from the financial needs of the University? Whether free education is better for the State and the individual than education that is paid for, in part at least, by the individual, is abstractly debatable. The only point pertinent to the inquiry of the Committee is whether aside from direct financial needs, the change to a tuition basis would be likely, all things considered, to strengthen the University and enlarge its usefulness. In this connection, and quite apart from any abstract proposition, the geographical situation of the University must be considered, and the fact that free tuition prevails at all the State Universities, and practically throughout the whole field from which our students are drawn. The imposition of tuition fees would presumably largely diminish the number of students at Stanford. At any rate, it would discourage the attendance of many earnest persons of limited means who at present constitute a desirable class of students.

(2) The imposition of tuition fees, as a matter of financial policy, the Committee has not been able to consider, except in the most cursory manner. The Committee's ignorance of the present and prospective value of the tax exemption granted by the Legislature and based upon free tuition in other than professional courses, and of the present financial condition and future financial prospects of the University, would render any recommendations on this point valueless. Assuming that tuition fees are to be found necessary, in order to maintain the standing and insure the progress of the University, the question arises, in what manner and upon what classes of students such fees should be imposed.—whether unequally upon different groups, whether limited to the first two or three undergraduate years, whether applied to all graduate students, whether charged equally upon all students in the University. On this point the Committee believes that a uniform tuition fee upon all undergraduates would be the least objectionable form of such a tax, and that graduate students, except in

professional lines of work, may well be exempt. In this connection it is understood that laboratory and other special expenses would be an additional charge and adjusted in some such manner as at present.

So far as concerns the charging of an incidental or appliance fee, covering the whole or a part of such miscellaneous expenses of the University as are outside of salaries and permanent equipment, it is conceded that the sum proposed to be raised would not be sufficient to afford permanent financial relief, or to warrant any important extension of the work now undertaken by the University. The question is therefore one mainly of emergency finance and can not enter into a consideration of the larger of University policy.

Conclusions and Recommendations.—The following conclusions and recommendations are made:

1. The Committee on Organization recognizes that a strong graduate school is a necessary part of a university of high standing and usefulness, and believes that the maintenance and development of such a school should receive full financial and academic support. It does not, however, believe it to be practicable or desirable to create and maintain a graduate university except in combination with a strong undergraduate college.

2. The Committee believes that the elimination of the first two years of the present undergraduate curriculum is not feasible.

3. The Committee believes that as a means of administering the elective system, arranging choices, supervising and guiding the work of students, the major department system covering the four years work, with such desirable modifications as experience may suggest, should be continued.

In this connection, the Committee recommends that the definition of this system, as phrased in the Register statement for 1908-09, be changed and re-cast as follows;

✓ "Each student selects as a major subject the work of some one department. The major department has the authority to prescribe not more than forty units in the major subject (exclusive of elementary courses in the major department which may be offered for entrance). The major department shall also recommend such other courses as it may consider desirable, and shall exercise an advisory supervision over the student's entire curriculum from semester to semester. Major department supervision of the student's study lists shall be administered in the spirit of the major subject system, which is to provide the inexperienced student with necessary advice and direction while developing his power of initiative, and to accord to the mature student larger and larger responsibility in planning his own curriculum. It shall be considered a general principle of university policy, to be departed from only in exceptional cases, that at least sixty of the one hundred and twenty units required for the degree be taken outside of the major department.

"In applied science the major department may prescribe so much of

the entire one hundred and twenty units as it shall deem essential to the technical or professional requirements of the major subject.

"A course in English Composition (English A) is prescribed for first-year undergraduates who do not satisfy the matriculation test.

"Within these limitations the work in all departments is elective, and the student may freely choose any course which his previous studies have prepared him to undertake.

"The recommendation of the major department is necessary to graduation."

4. The Committee believes that apart from the financial needs of the University, it is not desirable to impose tuition fees upon undergraduates; that if it seems necessary and best to meet such general expenses as heat, light, janitor service and library service from student fees, these should be met from a uniform general fee charged upon all undergraduates, instead of from special fees.

5. The Committee believes that while it is advisable to maintain a well-organized collegiate department, the proper policy of Stanford University, looking toward its future development in prestige and service, should place especial emphasis on advanced professional and graduate work, and that some plan should be formulated and put in operation looking toward the realization of this end. The Committee realizes that while its deliberations have resulted in negating certain proposals for change in the present policy of the University, there may be other possible solutions which should receive consideration. The Committee also believes that this subject should be considered further by a small committee specially elected for that purpose. The Committee therefore recommends:

(a) That the entire matter of University policy be referred to a new committee of the Academic Council, with instructions to formulate and to submit to the Academic Council recommendations for positive university action looking toward the development of graduate and professional work;

(b) That this new committee be elected at the first regular meeting of the Academic Council in September, 1910;

(c) That this new committee be composed of eleven members, one of whom shall be the President, who shall act as chairman, and ten of whom shall be elected from the entire membership of the Council by the Academic Council, after the manner of election of the representatives at large to the Advisory Board.

APPENDIX V

THE LIBRARY

The growth of the Library during the year is indicated by the following statement :

Volumes in Library, August 1, 1909.....	127,229
Added by purchase.....	9,316
Added by gifts and exchange.....	1,998
Added by binding.....	5,538
	<hr/>
Total volumes added.....	16,852
Less volumes withdrawn.....	200
	<hr/>
Net increase	16,652

Volumes in Library, July 31, 1910.....143,881

The major portion of the volumes acquired by purchase have been on account of the regular book fund subject to unit apportionment, and on account of the special appropriation for sets. There have been added, however, 592 volumes purchased on the syllabus fee account, 119 volumes purchased from the balance remaining in the Hoover-Mitchell fund, and 48 volumes from the Lathrop fund for Californiana. The apportionment of the units being substantially the same as for 1908-1909, which was printed in the Sixth Annual Report of the President of the University, I do not reproduce it here. Of the 5,538 volumes reported as being added on the bindery account, it should be explained that 1550 were newspapers which have been stitched and covered here at the Library during the past three years and which have only now been accessioned, while 1734 are pamphlets consisting of monographs considered of sufficient worth to justify separate treatment and which have been inserted in specially prepared covers by the Library's bindery assistant.

Under the gift account the largest single entry is 359 volumes belonging to the Stanford Estate which have now been transferred to the Library from the Museum. To Mr. H. W. Turner the Library is indebted for a gift of 73 volumes of geological journals, together with a large number of separates. Mr. Herbert C. Hoover has added still further to our obligations by a gift of 20 volumes of the Colliery Guardian. Mr. Timothy Hopkins has presented a set of Ongania's Basilica di San Marco, a beautiful work in 17 volumes; and Mr. Charles G. Lathrop has

generously added to his previous gifts for the purchase of Californiana the sum of two hundred dollars.

The Librarian has frequent occasion to write asking for copies of reports, monographs, and other material needed in connection with the University work. It is a pleasure to report the favorable responses usually granted to such requests. It is proper to note here, also, that during the past year through the efforts of Professor Young of the Department of Economics large additions have been made to our collection of reports of state railroad commissions. Through the efforts of Professor Adams of the Department of History we have received a full set of the statutes enacted by the Philippine Commission. Professor Treat of the same department has been enabled through the courtesy of the Chinese customs officials, to obtain for the Library the privilege of receiving the current numbers of the Customs Gazette.

The most notable single purchase during the year is that of the John R. Jarboe collection on the French Revolution. Mr. Jarboe, for many years one of the leaders of the San Francisco bar, during his lifetime had accumulated a large and valuable private library, and had devoted particular attention to the collection of material bearing upon the history of the French Revolution. It was not feasible to purchase the entire library. However, mutually satisfactory arrangements were made by which we acquired the entire portion relative to the French Revolution, together with a selection from the remainder of the library. The French Revolution material included 882 volumes and 1375 pamphlets; a large portion of the latter being contemporary publications. This material represents years of patient and judicious collecting and its acquisition makes this Library particularly strong in that period of French history.

Some of the more important purchases from the unit appropriation are here noted:

- B. Alberti Magni. Ratisbonensis episcopi, ordinis praedicatorum, opera omnia, ex editione. Lugdunensi religione castigata. Paris, 1890-99. 38 vols.
- Alegre, F. J.: Historia de la Compania de Jesús en Nueva-España. Mexico 1841-2. 3v.
- Crónica apostólica y seráfica de todos los Colegios de propaganda fide de misioneros franciscanos observantes; Escrita por . . . Espinosa (y Arricivita). Mexico, 1746-92. 2v.
- Curtius & Adler: Olympia. Berlin. 1890-97. 5v. texts, 4 of plates and atlas.
- Contents: Topography, history, architecture, bronzes, inscriptions, remains.
- Deutsche tiefsee-expedition: Wissenschaftliche ergebnisse der Deutschen tiefsee-expedition auf dem dampfer "Valdivia," 1898-99, hrsg. C. Chun. Jena, 1902-08. v. 1-8, 11, 14, 15.
- Estienne, Henri: Thesaurus graecae linguae, ab Henrico Stephanus constructus. Paris, 1831-65. 8 vols.
- Hakluyt society: Publications, 1847-1908. 123 vols.
- Michaux and Nuttall: The North American sylvia. 5v. 1859.
- Migne, J. P.: Patrologiae cursus completus. Series Latina. Paris, 1844-66. 221 vols.

The special appropriation for the purchase of sets has now been in operation for two years. Against the \$16,000 thus available, orders have been placed amounting to \$15,866.30. These have been filled and bills therefor have been audited to the amount of \$12,891.25, while there still remain orders outstanding to the amount of \$2,975.05. While a majority of the purchases have been made through our regular agents, no opportunity to buy to advantage elsewhere has been neglected. Orders for catalogue offerings or for items specially quoted have been sent to various places in this country as well as to London, Edinburgh, Berlin, Leipzig and Rome. Following is a list of the sets thus far received on this account:

- L'Académie des sciences, Paris: Comptes rendus, 1835-1901. 130 vols.
 Academy, 1869-1904. 67 vols.
 Alemannia, 1873-1904. 32 vols.
 American academy of arts and sciences: Memoirs and proceedings. 1783-1815. 3 vols.
 American journal of archeology, 1885-1902, 17 vols.
 American journal of science, 1818-1907, 176 vols.
 American society for testing materials: Proceedings, 1899-1908. 8 vols.
 American society of heating and ventilating engineers: Transactions. 1895-1907. 12 vols.
 American society of naval engineers: Journal, 17 vols.
 Annales des sciences naturelles: Zoologie et Botanique, 1824-1891. 257 vols.
 Annals and magazine of natural history; series 7. 14 vols.
 L'Année philosophique, 1890-1907. 17 vols.
 Archiv für mikroskopische anatomie. 54 vols.
 Archiv für papyrusforschung und verwandte gebiete, 1901-1908. 4 vols.
 Archiv für psychiatrie und nervenkrankheiten, 32 vols.
 Archiv für soziale gesetzgebung und statistik, 1888-1905. 23 vols.
 Archives de biologie. 20 vols.
 Association of engineering societies: Journal. 39 vols. Phila.
 Athenaeum, 1828-1890. 94v.
 Berg-und-hüttenmännische zeitung, 1842-1888. 47 vols.
 Bibliotheca zoologica (later Zoologica, hrsg. v. Leuchart & Chun. 1888 to date).
 Bibliotheque elzévirienne. 1856. 166 vols.
 Böhmer, ed: Regesta imperii. 1889-1904.
 Botanical society of Edinburgh: Transactions and proceedings. 23 vols.
 Botanische zeitung, 1843-90. 48 vols.
 British school at Athens: Annual. 1895-1906. 12 vols.
 British school at Rome: Papers. 2 vols.
 Cambridge and Dublin mathematical journal, 1846-54. 9 vols.
 Cambridge mathematical journal, 1839-45. 4 vols.
 Chemical gazette. 17 vols. 1842-1859.
 Civil engineer and architect's journal, 1837-68. 31 vols.
 Collection des chroniquers et trouvères belges. 70 vols.
 Cornhill magazine. 1860-1905. 92 vols.
 Corpus inscriptionum Atticarum. 3 vols. in 7.
 Curtis's Botanical magazine, 1787-1885. 111 vols.
 Deutsche chemische gesellschaft zu Berlin: Berichte. 1868-1908.
 K. Deutsches archaeologisches institut.: Antike denkmäler; 2 vols.
 K. Deutsches archaeologisches institut. Mittheilungen. Athenische abt. 1876-1907. 32 vols.

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 Annales des sciences naturelles: Zoologie et Botanique, 1824-1891. 257 vols.
 Annals and magazine of natural history; series 7. 14 vols.
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 Archiv für mikroskopische anatomie. 54 vols.
 Archiv für papyrusforschung und verwandte gebiete, 1901-1908. 4 vols.
 Archiv für psychiatrie und nervenkrankheiten, 32 vols.
 Archiv für soziale gesetzgebung und statistik, 1888-1905. 23 vols.
 Archives de biologie. 20 vols.
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 Berg-und-hüttenmännische zeitung, 1842-1888. 47 vols.
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 Böhmer, ed: Regesta imperii. 1889-1904.
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 Chemical gazette. 17 vols. 1842-1859.
 Civil engineer and architect's journal, 1837-68. 31 vols.
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 Cornhill magazine. 1860-1905. 92 vols.
 Corpus inscriptionum Atticarum. 3 vols. in 7.
 Curtis's Botanical magazine, 1787-1885. 111 vols.
 Deutsche chemische gesellschaft zu Berlin: Berichte. 1868-1908.
 K. Deutsches archaeologisches institut.: Antike denkmäler; 2 vols.
 K. Deutsches archaeologisches institut. Mittheilungen. Athenische abt. 1876-1907. 32 vols.

Early English text society: Publications:

Original series, nos. 1-13, 15-32, 34-99, 112, 115-123.

Extra series, nos. 1-62, 73, 77-89.

École française de Rome: *Mélanges d'archéologie et d'histoire*. 1881-1903. 23 vols.

Edinburgh Philosophical journal. 1819-63. 89 vols.

Electrical engineer. 7 vols. N. Y.

Electrical engineer: new series. 19 vols. London.

Electrical review. 26 vols. London.

Electrical review. 34 vols. N. Y.

Electrician. 20 vols.

Engineering record. 23 vols.

Engineers' club of Philadelphia: Proceedings. 24 vols. 1879-1907.

English dialect society: Publications. 32 vols. 1873-96.

English historical review. vols. 1-5.

The entomologist. 41 vols. 1840-1908.

Ephemeris epigraphica corporis inscriptionum Latinarum supplementum. 1872.—8 vols.

Fortnightly review. 55 vols. 1865-90.

France-Ministere de l'instruction publique: Collection de documents inédits sur l'histoire de France. 1835.—198 vols.

Gesundheits-ingenieur. 1878-1901. 24 vols.

Graham's illustrated magazine. 1841-58. 36 vols.

Great Britain—Corps of royal engineers: Professional papers. 1837-1906. 64 vols.

Grillparzer-gesellschaft: Jahrbuch. 18 vols. 1890-1908.

Incorporated association of municipal engineers: Proceedings. 32 vols. 1873-1908.

Institution of mining and metallurgy: Transactions. 1892-1907. London. 16 vols.

Institution of mining engineers: Transactions. 10 vols.

Institution of naval architects, London: Transactions, 1860-1908. 50 vols.

Internationale monatsschrift für anatomie und physiologie. vols. 1-15.

Jahrbuch für gesetzgebung, verwaltung und volkswirtschaft im Deutschen Reich. 1877-1909. 33 vols.

Jahresbericht über die fortschritte der classischen alterthumswissenschaft. (Bursian), vols. 1-18.

Journal of social science, containing the proceedings of the American association. 14 vols.

Journal of speculative philosophy, 1867-93. 22 vols.

Journal of the institute of actuaries, 42 vols. 1852-1909.

Das Kloster, von J. Scheible. 1845-9. 12 vols.

Literaturblatt für germanische und romanische philologie. Heilbronn. 11 vols.

London, Edinburgh and Dublin philosophical magazine. 2d ser. 1827-32. 11 vols. 3d series. 1832-50. 37 vols.

London mathematical society: Proceedings. 26 vols.

Massachusetts historical society: Collections. 1792-1907. 66v.

Massachusetts historical society: Proceedings. 17 vols.

Messenger of mathematics, preceded by the Oxford, Cambridge and Dublin messenger of mathematics. 30 vols.

Mind, old series, 1876-90. 15 vols.

Mines and minerals. 3 vols.

Mining and scientific press. 54 vols.

Monatsschrift für psychiatrie und neurologie. 22 vols.

Neue philologische rundschau. 1886-1908. 23 vols.

Die neue rundschau. 1890-1906. Jahr. 1-17.
 Nouvelles annales de mathématiques. 1842-95. 54 vols.
 Notes and queries. 113 vols. 1849-1902.
 Palaestra. 34 vols.
 K. Preussische akademie: Deutsche texte des mittelalters.
 Preussische jahrbucher. 122 vols.
 Quarterly journal of pure and applied mathematics, 1857-1896. 27 vols.
 Recueil des travaux chimiques des Pay-Bas, 1882-1907. 27 vols.
 Revue d'économie politique, 1887-1906. 20 vols.
 Revue des études grecques, 1888-1908. 21 vols.
 Revue historique. 77 vols.
 Royal society of arts: Journal, 1852-1907. 55 vols.
 Royal society of London: Proceedings. 79 vols.
 Romanische studien. 1871-95. 6 vols.
 Royal society of Edinburgh: Transactions, 1788-1908. 43 vols.
 Russkoe entomologicheskoe obshchestvo, Saint Petersburg: Horae
 Societatis entomologicae Rossicae. 1861-1908. 38 vols.
 K. Sächsische gesellschaft der wissenschaften. Mathematisch-physische
 klasse. Abhandlungen. 1852-1908. 30 vols.
 Société entomologique de France: Annales et bulletin. 1832-1908. 77 vols.
 Society for psychical research: Proceedings 1892-1906. 20 vols.
 Society for the promotion of engineering education: Proceedings. 15 vols.
 Society of antiquaries of London: Archaeologia, 1773-1906. 60 vols.
 Society of Engineers: Transactions. 1860-1908. 47 vols. Lond.
 Society of naval architects and marine engineers: Transactions, 1893-1907.
 15 vols.
 Southern literary messenger. 1834-64. 38 vols.
 Spencer society: Publications. 20 vols.
 Staats-und socialwissenschaftliche forschungen, 1879-1906. 135 nos.
 Studi di filologia romanza. 9 vols.
 Surveyors institution, London. Professional notes, 1886-1905, vols. 1-13.
 Transactions, 1869-96, 28 vols.
 Western electrician, 1887-1908. 41 vols.
 Worcester Polytechnic Institute: Journal. 1897-1908. 11 vols.
 Zeitschrift für analytische chemie. 1862-1908. 47 vols.
 Zeitschrift für das berg-, hütten- und salinen-wesen im Preussischenstaate,
 1854-91, 39 vols.
 Zeitschrift für die oesterreichischen gymnasien. 1850-1908. 59 vols.

At the present rate of accession we shall soon be again confronted by the problem of shelving. Frequent shifting in the stacks is necessary to accommodate the new books, and the amount of available space is rapidly diminishing. It is extremely desirable that the unused space over the arcade be fitted with stacks to accommodate the public documents which would then be conveniently accessible to the History and Economics Seminars where most of the demands for this material arise. This would be a convenient location for those documents and at the same time would relieve the congestion in the main stack.

Miss Hays, classifier, was absent on leave during the first semester and returned to work in January. During her absence the classification was done under the direction of the chief cataloguer, Miss Sutliff, and was not allowed to fall into arrears. Miss Hays' assistant, Miss Little, resigned in June, and was succeeded by Mrs. Bennett, who had had several

months previous experience as an apprentice, to assist her in taking up the work. Miss Franklin and Miss James spent three weeks at Santa Cruz in listing the books of the Jarboe collection and finally at the beginning of June Miss James was transferred to the Lane Medical Library. Notwithstanding all of these handicaps, the work of classification and cataloguing has been kept abreast of the current accessions and something has been accomplished toward the disposal of accumulated work. Cards have been written for 4,286 volumes chiefly from departmental libraries, acquired in former years but not previously represented in the catalogue. Miss Sutliff reports a total of 16,363 volumes catalogued and 52,629 cards added to the catalogue, which now contains approximately 282,942 cards.

Work at the Loan Desk has gone along with as little friction as could be expected in view of the nature of the demands made upon it. Where we previously had four student assistants, in addition to the regular staff, each working periods of three hours daily, we have had two assistants giving full schedule time. The change has been very satisfactory.

Subjoined is a table showing the number of books issued from the main stack during the year, the total 155,661 being an increase of 14,779 volumes over the number thus issued for the preceding year. It speaks well for the efficiency of the staff at the Desk that this increased volume of work was handled so expeditiously.

Circulation, 1909-10.

August	2992	February	20518
September	18160	March	16067
October	23231	April	19068
November	18103	May	11303
December	11643	June	847
January	13239	July	490
			Total
			155,661

In order to abate as far as possible the difficulties arising from the referring of large numbers of students to library books of which only an inadequate number of copies are available, the Librarian in May last sent a circular to the members of the teaching staff containing the following requests:

“That you send to the Librarian not later than June 1st a list of all books that will be referred to in your courses to be given during the first semester, 1910-11, and which you expect to be available at the Library.

“That you state as accurately as circumstances permit the probable number of students who may be expected to use such books.”

This met with a gratifying response, and the Library was thereby enabled to prepare itself in a measure for the demands to come later. There is yet much to be accomplished, however, in adequately providing

for the demands arising from the requirements of some of the departments in the matter of collateral reading.

A handbook explaining the organization of the Library, and embodying such other information as will be helpful to an intelligent use of its resources, has been prepared and published. The system of classification is outlined, and the card catalogue is explained in detail. In short, we have tried to put into the book all that would be said to a body of new students to whom we might be trying to explain all that it would be necessary for them to know in order to make the best use of the Library with the least friction.

During the summer a complete inventory was taken of the books of the Library. During each of the two preceding summers a partial inventory was taken but this is the first time we have been able to cover the entire ground. The list of items unaccounted for is the accumulation of years and furthermore covers a period during which many changes have been made in class numbers, it is therefore quite probable that some of the books can yet be traced. The list is now being compared with the shelf list with this object in view.

Miss Provines, who had been an assistant at the Loan Desk since January 1908, resigned in June to assume a position in the State Library at Sacramento. We have been fortunate in securing Miss L. May Brooks, who has had valuable experience in the Library of the University of Minnesota, to fill the vacancy thus created.

The Library is now regularly receiving 980 periodicals, being an increase of 49 over the number reported last year. Of these, 100 come as gifts or by exchange, while 880 are upon our subscription list.

There has been much activity during the year in the matter of binding, an aggregate of 2,901 volumes having been bound. Of these 2,650 volumes represented serial material bound for the first time, while 251 volumes were books which much use had made it necessary to rebind. The amount has very materially reduced the accumulation of past years and I think we are justified in stating that at no time has the condition of our serials been better, or the bound volumes thereof brought more closely to the numbers last published.

As already stated, there have been several changes in the staff. Miss Provines and Miss Little resigned and Miss James has been assigned to the Lane Medical Library. Miss Bigley has accepted a position in the library of the University of California, and the vacancy thus created in the Catalogue department will not be filled. Miss L. May Brooks of the University of Minnesota comes to the Loan Desk in the place of Miss Provines. Mrs. Mira Bennett, who had done some months of practice work here, has a temporary appointment to the vacancy occasioned by the resignation of Miss Little. Miss Della Thompson, who graduated from this University in 1909, has been appointed to fill the vacancy in the Catalogue department caused by the transfer of Miss James.

The Stanford Library Club, an organization of which every one on the staff is a member, meets monthly during the college year. Matters of general interest to library workers are considered and occasionally talks on special topics are given by invited speakers. The meetings serve the purpose of bringing the members of the staff together socially, broadening their interest in the work, and nourishing an *esprit de corps*.

The annual meeting of the California Library Association was held at Long Beach at a time inconvenient for many of our staff to attend. The first district of this Association, however, including the larger libraries about San Francisco Bay, held its spring meeting on the Campus and was entertained by the Stanford Library Club.

GEORGE THOMAS CLARK,
Librarian.

APPENDIX VI

DEAN OF WOMEN

The more effective the work of a dean of women, the more personal its nature and the more difficult its record. But a general report upon questions affecting the whole body of women is in order.

Roble Hall, under the able management of its new matron, Miss Shirley Hyatt, has tested student government under a Committee of Five, and completed one of the most satisfactory years in its history. Another hall under University management would eliminate the objectionable rooming-house life among the women, and prevent the increase of sorority houses. Sorority houses have afforded the most satisfactory solution to the problem of living accommodations on the campus; but other problems inherent in their organization multiply with their number, and social functions increase in alarming proportion. Another University dormitory for women would simplify these problems, and reduce additional social functions to a minimum.

Young women could be required to live in dormitory for the first year of residence, and initiates into sorority houses would then be raised to sophomore standing, and the present system of "rushing" be abolished.

Despite the action of the Committee on Student Affairs confining social functions to Friday and Saturday evenings, such functions are yet too numerous and too elaborate. Further limitations are an immediate necessity, and if possible should be in favor of professional clubs and scholarly societies at the expense of affairs purely social and connected with the University only by the personnel of the participants.

With the conviction that too many women, unfitted for teaching, are drifting into that vocation, because they are not fitted for any other; that such women are in need of preparation for other fields during their university training, and that the present attitude of such women towards the existing curriculum is detrimental to the best interests of the University, I earnestly hope for an extension in certain departments that will afford an opportunity to pursue subjects more vitally connected with the future vocational needs of women.

EVELYN WIGHT ALLAN,
Dean of Women.

APPENDIX VII

STUDENT ADVISER

The work of the Student Adviser during the first year of the existence of this office has divided itself naturally into two fields.

The first of these has been the function of consulting with and advising underclassmen upon matters of academic or of personal interest. As a part of his registration each new student filed an information and study card with the Student Adviser. By this means an opportunity was afforded for meeting all first-year men and assisting them in the selection of their major departments and the arrangement of study courses. At mid-semester, scholarship reports were sent in to this office, and those students whose work was not satisfactory were interviewed with the object of discovering the reasons for their failure and assisting them. By means of these interviews with some hundred men, and an examination of the scholarship reports for the whole year, it was found that the average standard of scholarship was highest in Encina Hall. The fraternity and Palo Alto residents ranked next, and a noticeably low standard of work was found among the students living in private boarding houses upon the Campus. Another interesting fact shown was that the average standard of scholarship among the men engaged in athletics was above the average standard of the men generally.

By an active association with men in their athletics and other activities, and membership in the various student organizations, the Student Adviser has been able to keep in very close touch with student life. This close contact has also enabled him to form the acquaintances which are necessarily the basis for personal work.

The second field of work has been in matters of more general interest, such as the further organization and the general supervision of the work of the University Conference. It is through this organization that a system of student control is being developed in which the upperclassmen will realize and exercise a responsibility for the maintenance of good order and high ideals in University life. The Conference met regularly throughout the year and both faculty and students have taken a great interest in its work. A number of joint meetings with the faculty Student Affairs Committee were held for the discussion of various problems and the formation of such regulations as were deemed necessary. As a medium for the exchange of ideas the Conference has done much to bring about a clear understanding and a cordial relation between faculty and students.

The work of the past year has been largely experimental and it is hoped that the field of service to the University which has been afforded by the creation of the office of Student Adviser may this year be greatly extended.

ALMON EDWARD ROTH,
Student Adviser.

APPENDIX VIII

CHAPEL

Services of public worship have been held each Sunday of the academic year. On Thursdays during the first semester, an evening service was maintained. During the second semester a daily Chapel service has been held each morning at eight o'clock. This new service has been well attended by a congregation made up entirely of students, varying from twenty to fifty in number, a fair proportion being men.

The Chaplain has officiated at every service held in the University, except upon two occasions, while absent (1) as special preacher at Mills College, and (2) at the consecration of a new church at San Mateo.

Acting under the authority of the Board of Trustees, the Chaplain has invited clergymen of various denominations to preach at the Chapel service on alternate Sunday mornings.

The SPECIAL PREACHERS for 1909-10 have been:

- Rev. Bradford Leavitt, Unitarian, San Francisco.
- Rev. E. P. Dennett, Methodist, San Francisco.
- Rev. Willis R. Hotchkiss, Friend, Africa.
- Rabbi Martin Meyer, Hebrew, San Francisco.
- Rev. Hugh Black, Presbyterian, New York.
- Rev. William MacCormack, Episcopalian, Los Angeles.
- Bishop Sydney Catlin Partridge, Kyoto, Japan.
- Dr. Cochrane, Presbyterian, New York.
- Rev. D. N. McCash, Christian Church, Berkeley.
- Rev. J. Wilmer Gresham, Episcopalian, San Jose.
- Rev. W. D. Symonds, Unitarian, Oakland.
- Bishop Samuel Fallows, Reformed Episcopal, Chicago.
- Rev. Robert MacKenzie, Presbyterian, San Anselmo.
- Rev. A. W. Palmer, Plymouth Congregational Church, Oakland.
- Bishop Spaulding, Episcopalian, Salt Lake City.
- Rev. W. A. Patchell, Congregational, San Jose.
- Rev. F. W. Clampett, D. D., Baccalaureate Preacher.

On the academic side the Chaplain has given a course of lectures "On the history of the life and teaching of Jesus, with a study of his words as recorded in the Gospels, and the application of his teaching to the life of to-day."

The Chaplain keeps office hours daily, from nine to twelve, and in the course of the year's work meets a large body of students for consultation on personal matters.

The Chaplain visits every sick or distressed student of whom he has knowledge, and makes regular visits each week to students in the hospital. He keeps in touch with student life through (1) calls upon students in their lodgings, (2) the hospitality of clubs, sororities and fraternities, (3) meetings of clubs and societies, and (4) acting in *loco parentis* for many freshmen committed to his care.

During the last semester the organist and members of the choir, with the consent of the chairman of the church committee, acquired a small pipe organ for use in the Chapel services. The choir assumes all financial responsibility and Mr. Buehrer is entitled to credit for his leadership in the matter.

D. CHARLES GARDNER,
Chaplain.

APPENDIX IX

MUSEUM

Work at the Museum was confined principally to the care of the collections, the working force being reduced to the least possible number in the interest of economy.

A large number of new labels were made and placed upon the exhibits, including little plates for the greater part of the paintings now hung.

The donations for the year include the current numbers of the "Daily Palo Alto," "Stanford Press," and "Alumnus." The two most important donations were a collection from the Egyptian Exploration Fund of Egyptian antiquities from El Mahasna and Abydos, consisting of baked clay ushabtis, glazed gods, seals, etc., nearly all from the XVIII dynasty.

From Don Pablo Vasquez, of Spanishtown, was received a particularly valuable collection of Mission Dolores relics, including the candle-stick, plowshare, model plow, and steel Roma or steelyard. The latter was given to the mission by Father Junipera Serra in 1776, and was the only one used on the Peninsula up to the year 1844. Don Pablo Vasquez inherited them from his father, who was the last Major-domo of Dolores Mission.

The attendance was exceptionally good for the entire year.

H. C. PETERSON,
Curator.





LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1911

TRUSTEES' SERIES

No. 20

EIGHTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1911

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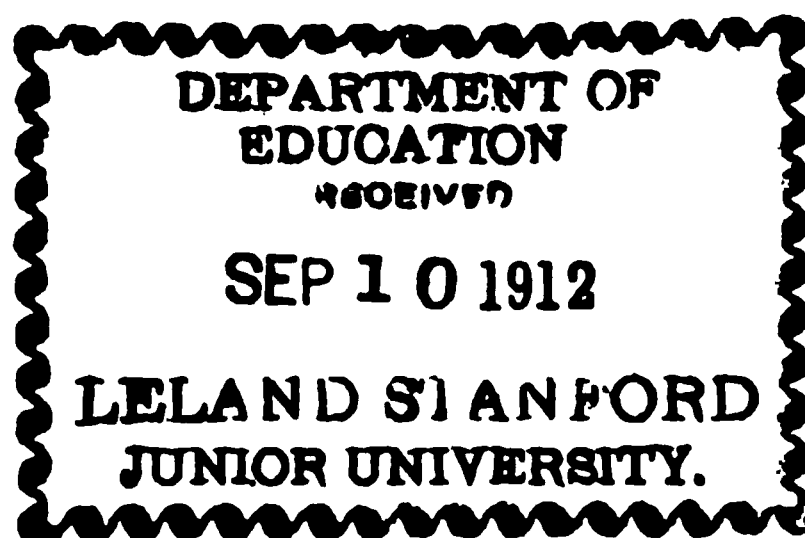
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TRUSTEES' SERIES

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STANFORD UNIVERSITY, CALIFORNIA
PUBLISHED BY THE UNIVERSITY
1911

Leland Stanford Junior University Publications

TRUSTEES' SERIES.

NO.	DATE
1. The Leland Stanford Junior University. A pamphlet of information.....	(No date)
2. Address of Jane Lathrop Stanford to the Board of Trustees.....	February 11, 1897
3. Address of Jane Lathrop Stanford to the Board of Trustees	June 1, 1897
4. Address of Jane Lathrop Stanford to the Board of Trustees.....	May 31, 1899
5. Address of Jane Lathrop Stanford to the Board of Trustees.....	October 3, 1902
6. Address on "The Right of Free Speech," by Jane Lathrop Stanford to the Board of Trustees..	April 25, 1903
7. Petition filed in proceedings to establish and construe University Trusts.....	June 16, 1903
8. Decree in proceeding to establish and construe University Trusts.....	July 3, 1903
9. Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
10. Organization of the Faculty of the University.....	March 31, 1904
11. Report of the Organization Committee of the Trustees upon the Organization of the University Faculty.....	March 31, 1904
12. First Annual Report of the President.....	December 31, 1905
13. Second Annual Report of the President.....	April 30, 1906
14. Third Annual Report of the President.....	December 31, 1906
15. Fourth Annual Report of the President.....	December 31, 1907
16. Trustees' Manual.....	November 1, 1908
17. Fifth Annual Report of the President.....	December 31, 1908
18. Sixth Annual Report of the President.....	December 31, 1909
19. Seventh Annual Report of the President.....	December 31, 1910
20. Eighth Annual Report of the President.....	December 31, 1911

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REPORT OF THE PRESIDENT

STANFORD UNIVERSITY, CAL., December 30, 1911.

*To the Honorable Board of Trustees,
Leland Stanford Junior University,*

GENTLEMEN:

I beg to submit herewith my report as President of the University for the academic year 1910-11.

No event of overshadowing importance has taken place in the year. The work of the student body has been better than ever before, a result which has been plainly due to the fact that alcoholic liquors have been banished from the neighborhood of the University, and to the fact that the University authorities are on record as unwilling to receive or retain, as members of the University, students who find alcoholism in any degree essential to their enjoyment.

The Banishment of the Saloon

The Supreme Court of California has made effective the statute forbidding the sale of alcoholic liquors within a mile and a half of the University grounds. This closes the saloons of Menlo Park. Those of Mayfield were many years ago abolished by town ordinance. The city of Palo Alto has never had saloons, the deeds of sale of all real property containing a clause involving forfeiture of any land on which alcoholic liquors are sold.

The problems of the fraternity and the chapter house are here as elsewhere not entirely settled, although many of the evils of exclusiveness and dissipation on the part of the fraternities scarcely exist at Stanford. It is, however, still true that the average scholarship of fraternity men at Stanford, as in all the larger universities, is below the average of that of the men of other groups. This condition is one that can not persist without injury to higher education and without menace to the fraternity system, which has now obtained such a strong hold in American universities. It may be that

Fraternities and Chapter Houses

the fault lies in part with the fact of residence in chapter houses and with the temptation this gives to gregarious idleness and undue smoking together, a sort of second power idleness. It may be that the fraternities, choosing their members too early in the college course, have no adequate basis for

the selection of men likely to have a worthy college career. It may be that the student activities outside the class room bear too heavily on the fraternity men, many of whom are chosen mainly for their skill in such activities. This matter has been largely investigated in other institutions, and the remedy usually urged is this—to allow no student to be initiated into a fraternity nor to reside in a chapter house in his first year in college. A part of the evil is clearly due to the premature pledging of students in the high schools. Admitting the weakness in question, it is for the fraternities themselves, through their local chapters, their alumni and their national secretaries, to improve these conditions. In the final resort, the remedy lies with the faculties of the universities. A most pressing duty in university management is to give such personal advice, and to exercise such official authority, that students who have no adequate interest in their legitimate university work shall not cumber its classes. I believe that culture worthy the name can not be had without severe mental effort. Such effort

Vocational Training will be put forth only for the love of the work or through the belief that the work is in some degree related to success or joy in life. The entrance of the vocational element as a factor in the university has worked everywhere for better scholarship, unless the idea has been given too narrow a scope. The vocational work of the university should be the preparation of willing men and women to develop the largest ideals of personal and social effectiveness.

The attendance of students for the year has been 1758, as against 1744 for the preceding year. Of these students, 207 were in graduate standing, 136 of them accepted as candidates for advanced degrees.

Attendance The new students for the year numbered 581; those previously matriculated, 1177. The detailed classification of these students will be found in the report of the Registrar. The graduating class numbered 338, of whom four received the degree of Doctor of Philosophy, and 39 the degree of Master of Arts.

Two important pieces of building have been begun in the present year. One is the restoration of the Memorial church as a class A steel structure, along the lines of the original building wrecked by the earthquake of 1906. The other is the erection of the

Building Operations Lane Library in connection with the Medical School. This building is being erected on the corner of Sacramento and Webster streets in San Francisco, across the street from Cooper Hall and the Lane Hospital, now the property of the University. The building is of concrete, two stories in height, with ample reading rooms and stack rooms. It is built on funds left

by the will of the late Mrs. Levi Cooper Lane, widow of the founder of Cooper Medical College.

Provision has also been made for the restoration of the damaged wings of the University Museum, through a gift of Mr. Thomas Welton Stanford. The part to be restored is intended especially to house the large collection of paintings presented by Mr. Stanford in 1905.

A notable event of the year was the first series of the Raymond F. West lectures on Immortality, Human Conduct and Human Destiny. This course of three lectures was given by Dr. Charles Edward Jefferson of the Broadway Tabernacle church of New York City. They have been published by Houghton, Mifflin Company of Boston under the title, "Why We May Believe in Life After Death." The choice English, the fine earnestness, and the eminent fairness of these lectures made a strong impression on the students of the University.

The year was also noteworthy for the presence of eminent visitors, who spoke one or more times each in the interest of international peace. These were Miss Ida M. Tarbell of New York, the Baron D'Estournelles de Constant of La Fleche, senator of France; Professor Ernst Daenell of the University of Kiel, Kaiser Wilhelm professor to the United States, and Dr. James A. Macdonald, editor of the Toronto "Globe," the last named giving the Founders' Day address on March 9.

Among the gifts to the University for the year is one by Dr. Adolph Barkan, professor emeritus in the Department of Medicine, of \$10,000 for the endowment of that division of the Medical Library devoted to his special branch—diseases of the eye, ear and larynx. The conditions of this gift are set forth in the following extract from Dr. Barkan's letter:

"Considering the broad-minded and efficient support by the President and Board of Trustees of medical education; considering, also, the opportune visit of Professor Fuchs and the carrying out of the Lane Medical Library plans and purposes, I have decided to endow the eye and ear department of the library, transferring, with the consent of the Cooper Medical College Trustees, my previous gift of \$5000 on account of the former "Teachers' Fund," to that purpose, and adding to it now \$5000. The yearly income from this sum will fairly provide for the maintenance of this special library."

The Lane Medical Library received a notable addition during the year, in the medical library of the late Dr. G. L. Simmons, containing 1000 volumes, the gift of his sons, Drs. G. L. and S. E. Simmons of Sacramento.

The consummation of the plans for the Lane Medical Library building have been greatly aided by the following further gifts to the Medical Department:

From the Directors of Cooper Medical College.....	\$20,000
Mr. Charles G. Lathrop.....	5,000
Mr. Antoine Borel.....	2,500
Mr. J. Henry Meyer.....	2,500
Mr. Edward Coleman.....	2,500
Total	<hr/> \$32,500

Important also is the gift by the late William Russell Dudley of his private botanical collections, numbering approximately 50,000 sheets and especially rich in the plants of the Sierra. Added to the specimens already in the collections of the Department of Botany, this brings the total collection up to 150,000 specimens. The collection will hereafter be known as "The Dudley Herbarium."

The University may here record its grateful appreciation of these gifts and many minor gifts, a list of which will be found in an appendix to this report.

The death of Dr. Matzke, of the Department of Romanic Languages, mention of which was made in my report of last year, has been deeply felt by the University community. It has been followed by the death of William Russell Dudley, of the chair of Systematic Botany, which occurred on June 4, 1911. The following brief account of his life may be here put on record:

William Russell Dudley was born in North Guilford, Connecticut, March 1, 1849. He entered Cornell University in September, 1870, and graduated with the degree of B. S. in 1874, receiving his M. S. in 1876 after spending some time in botanical studies in Strassburg and Berlin. He was instructor in botany at Cornell until 1876, becoming then assistant professor. He remained at Cornell University until his transfer to the professorship of Systematic Botany at Stanford University, in 1892. This chair he held until failing health caused his retirement in January, 1911, as professor emeritus under the Carnegie Foundation. As an investigator, Professor Dudley was persistent and accurate, doing his work for the love of it. He entered with great enthusiasm into the study of the California flora, the conifers of the Sierra being his especial delight. His extensive collections have been presented to the University and are known as the "Dudley Herbarium." He was a leading member of the Sierra Club and a frequent contributor to its bulletin, as well as to a wide range of botanical publications. Professor Dudley was one of the most respected, as well as best beloved members of the University faculty. No one could

come near him without recognizing the extreme refinement of his nature—a keen intellect, an untiring joy in his chosen work, and the Puritan conscience at its best, with clear perceptions of his own duties to himself and a generous recognition of the rights and aspirations of others. He died at Los Altos, California, June 4, 1911. He was never married.

The President was absent from the University on sabbatical leave for the first semester of the year, his first absence from University work except for reasons of University business or of public service, since the year 1880. Most of his time during this absence was given to the work of the World Peace Foundation, in Boston and in Europe. During this year his term of service as International Commissioner of Fisheries for the United States and Great Britain, came to an end, with the completion of the series of international regulations to govern the fishing in treaty waters. For the year the President has acted as a member of the California Fish and Game Commission, resigning August 1, 1911.

**Faculty
Changes and
Absences**

The following changes in the faculty for the year may be noted:

In Latin, Professor Fairclough was absent during the year, filling a professorship in the American School of Classical Studies at Rome.

In English, Assistant Professors Seward and Hall were absent on sabbatical leave. Associate Professor Alden resigned at the close of the year to accept a professorship in the University of Illinois. Instructor Bonnell also resigned to accept a position in the University of Wisconsin.

In Psychology, Associate Professor Martin was promoted to a professorship.

In Philosophy, Assistant Professor Sabine was absent during the year as a member of the faculty in the Sage School of Philosophy in Cornell University. Professor Addison M. Moore of the University of Chicago filled the vacancy in the department, as acting professor during the second semester.

In Education, Professor Cubberley was absent on sabbatical leave during the second semester, acting as Lecturer on Education at Harvard University. Assistant Professors Davidson and Bentley were promoted to the rank of associate professor.

In History, Professor Bolton resigned to accept the chair of American History in the University of California. Mr. Edgar Eugene Robinson of Carleton College, Minnesota, has been appointed assistant professor. Assistant Professor Treat was promoted to an associate professorship.

In Economics and Social Science, Professor Young was absent during the year on leave as Lecturer on Economics at Harvard Uni-

versity, resigning at its close to become Professor of Economics in Washington University at St. Louis. Associate Professor Whitaker was promoted to the rank of professor. Dr. Alvin S. Johnson of the University of Chicago has been appointed Professor of Economics and assumes the headship of the department for 1911-12.

In Law, Associate Professor Huston was promoted to the rank of professor.

In Applied Mathematics, Assistant Professor Manning was absent on sabbatical leave, spending the year in Europe.

In Physics, Assistant Professor Brown was absent on sabbatical leave.

In Chemistry, Dr. Stillman was absent on sabbatical leave during the second semester. Associate Professor Swain has been promoted to the rank of professor.

In Botany, Professor Dudley was retired under the Carnegie Foundation and became professor emeritus in January. Assistant Professor Abrams was made associate professor and curator of the "Dudley Herbarium." Professor Peirce spent the second semester of the year on sabbatical leave at the University of Wisconsin. Owing to the death of Professor Dudley, the departments of Systematic and General Botany have been merged into one department, under the executive headship of Professor Campbell.

In Hygiene, Dr. Snow continued absent on leave as Secretary of the State Board of Public Health. The work in Hygiene will, in the future, be carried on as a division of the Department of Medicine, and in view of this, with the beginning of the academic year 1911-12 the former Department of Hygiene will be discontinued and the work in physical training will be divided between the two gymnasias, that in Encina being under the direction of Assistant Professor Long, and that in Roble under the direction of Assistant Professor Clelia D. Mosher.

In Physiology, Assistant Professor Slonaker was absent on leave during the second semester. Assistant Professor Stoltenberg was promoted to the rank of Associate Professor.

In Zoology, Professor Price was absent on sabbatical leave during the second semester. Assistant Professor Snyder was promoted to the rank of Associate Professor.

In Geology and Mining, Assistant Professors Folsom and Clevenger were promoted to the rank of Associate Professor.

In Medicine, Dr. Ray L. Wilbur took up his active duties as executive head of the department January 1, 1911, relieving Dr. Stillman. Associate Professor Zinsser was made Professor of Bacteriology. Professors Barkan and Gibbons were retired from active duties, being made professors emeritus.

The following is a list of the publications of the individual members of the University Faculty:

ABRAMS, LEROY:

Flora of Los Angeles and vicinity (supplemental edition): *Stanford University Press*, 1911.

A phytogeographic and taxonomic study of the southern California trees and shrubs: *New York Botanical Garden Bulletin*, 6; September, 1910.

Professor Dudley's work: *Stanford Alumnus*, 12; February, 1911.

ADAMS, EPHRAIM DOUGLAS:

Communication to the editor, *American Historical Review*, 16; January, 1911.

An American series of general history; review of "Europe since 1815," by Charles Downer Hazen: *The Dial*, 49; October, 1910.

A century of empire, vol. 2, by Sir Herbert Maxwell, (review): *American Historical Review*, 16; January, 1911.

A history of the Irish parliamentary party, by Hugh O'Donnell, (review): *American Academy of Political and Social Science*, 36; November, 1910.

James K. Polk, (review): *The Dial*, 49; November, 1910.

Les négociations de Lille, 1797, by Charles Ballot, (review): *The Dial*, 16; July, 1911.

The return to Macaulay: *The Dial*, 49; November, 1910.

ALDEN, RAYMOND MACDONALD:

Palace made by music; Indianapolis, Bobbs-Merrill, 1910.

According to Lucy: *Good Housekeeping*, 51; September, 1910.

ANDERSON, MELVILLE BEST:

Tribute to President Jordan on his sixtieth birthday: *Stanford Alumnus*, 12; February, 1911.

ANGELL, FRANK:

Note on some of the physical factors affecting reaction time, together with a description of a new reaction key: *American Journal of Psychology*, 22; January, 1911.

BASSETT, LEE EMERSON:

Miracle plays at Stanford: *Stanford Alumnus*, 12; January, 1911.

Teaching of poetry in the public schools; part 1: *Western Journal of Education*. July, 1911.

BLICHFELDT, HANS FREDERICK:

On the order of linear homogeneous groups; fourth paper: *American Mathematical Society Transactions*, 12; January, 1911.

BOLTON, HERBERT EUGENE:

Expedition to San Francisco Bay in 1770; diary of Pedro Fages, edited by H. E. Bolton: *Academy of Pacific Coast History Publications*, vol. 2, No. 3; July, 1911.

Jumano Indians in Texas, 1650-1771: *Texas Historical Association, Quarterly*, 15; July, 1911.

BRANNER, JOHN CASPER:

A brief grammar of the Portuguese language with exercises and vocabularies. New York, Holt & Co., 1910.

Syllabus of a course of lectures on economic geology; 3d ed. Stanford University, 1911.

Aggraded limestone plains of the interior of Bahia and the climatic changes suggested by them. *Geological Society of America*, 22; 1911.

Comparison of the effects of the earthquakes of Mendoza, Valparaiso, Kingston and San Francisco: *Seismological Society of America, Bulletin* 1; 1911.

Geology and topography of the Serra de Jacobina, State of Bahia, Brazil: *American Journal of Science*, 30; December, 1910.

Geology and topography of the Serra do Mulato, State of Bahia, Brazil: *ibid.*, 30; October, 1910.

Geology of the coast of the state of Alagoas, Brazil: *Annals of the Carnegie Museum*, 7; November, 1910.

Methods of geologic investigation and publication: *Economic Geology*, 6; January-February, 1911.

Minerals associated with diamonds and carbonados in the State of Bahia, Brazil: *American Journal of Science*, 31; June, 1911.

Reviews of seismological literature: *Seismological Society of America, Bulletin*, 1; 1911.

South America, Encyclopaedia Britannica; ed. 11, v. 25, 1911. Suggested organization for seismological work on the Pacific Coast: *Seismological Society of America, Bulletin*, 1; March, 1911.

Tombador escarpment in the State of Bahia, Brazil: *American Journal of Science*, 30; November, 1910.

CAMPBELL, DOUGLAS HOUGHTON:

The embryo-sac of pandanus: *Annals of Botany*, 25; July, 1911.

The eusporangiateae—the comparative morphology of the ophioglossaceae and marattiaceae: *Carnegie Institution of Washington, Publications*, No. 140; 1911.

The nature of graft-hybrids: *American Naturalist*, 45; January, 1911.

Notes on some California green algae: *Torreyia*, 11; January, 1911.

Plant morphology in America: *Plant World*, 14; May, 1911.
Some recent books on fossil plants: *American Naturalist*, 45;
July, 1911.

CANNON, HENRY LEWIN:

English history: *Nation*, 92; August, 1910.
(With Krehbiel, E. B.): History course at Leland Stanford; His-
tory training course by H. L. Cannon: *History Teachers'*
Magazine, 2; October, 1910.

CHARTERS, SAMUEL BARCLAY, JR.:

Engineering course for under-classmen: *Society for the Promotion*
of Engineering Education, Bulletin; June, 1911. (With Hille-
brand, W. A.)
The problem of technical education with special references to con-
ditions on the Pacific Coast: *Paper presented S. F. Sec. A.*
O. E. E., October 28, 1910. (With Hillebrand, W. A.)

CHENEY, WILLIAM FITCH:

Diagnosis of duodenal ulcer: *American Journal of Medical Sci-*
ences; March, 1911.
Hyperchlorhydria: *California State Journal of Medicine*; Febru-
ary, 1911.

CLARK, GEORGE ARCHIBALD:

The much misunderstood fur seals of Bering Sea: *Popular Sci-*
ence Monthly, 77; November, 1910.

• COOPER, WILLIAM ALPHA:

Quelle zu Faust, 682f.: *Goethe Jahrbuch*, 32; 1911.
Alt's edition of Goethe's Faust, (review): *Nation*, 91; August,
1910.
Braun's Margaret Fuller and Goethe, (review): *Journal of Eng-*
lish and Germanic Philology, 10; April, 1911.
Goethe's gespräche, III-IV, (review): *Nation*, 93; July, 1911.
Hirschberg's Rückert-Nachlese I, (review): *Nation*, 92, March,
1911.
Morris's Der junge Goethe, (review): *Journal of English and*
Germanic Philology, 10; July, 1911.
Noe's Das junge Deutschland und Goethe, (review): *Nation*, 92;
April, 1911.
Reception of Goethe's Faust in England, by Hauhart, (review):
Deutsche Literaturzeitung, 31; December, 1910.
Schiller's persönlichkeit, (review): *Nation*, 91; November, 1910.

CRAWFORD, ALBERT CORNELIUS:

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Dance of the Laysan albatross: *Collier's*, 46; November, 1910.

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Abnormal body temperatures in injuries of the cervical spinal cord: *California State Journal of Medicine*; April, 1911.

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WOODWARD, FREDERIC CAMPBELL:

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YOUNG, STEWART WOODFORD:

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(With McCoy and Chapin) On the protective influence of leucocytic substances upon experimental plague infection in rats: *Journal of Medical Research*, 24; June, 1911.

On the toxic action of certain normal sera and its relation to anaphylaxis: *Journal of Experimental Medicine*, 14; July, 1911.

(With Vogel, K. M.,) tr.: Rudolph Schmidt's Pain; its causation and diagnostic significance in internal disease; 2d rev. ed. Phila. Lippincott, 1911.

(With Hiss, P. H., Jr.) A text-book for students and practitioners of medicine. New York, Appleton, 1910.

During the year a portrait of President Jordan was painted by a distinguished artist, Mrs. Emma Curtis Richardson of San Francisco. This portrait was presented by the Alumni Association to the University, and is now hung in the Library.

The customary reports by executive heads of departments, chairmen of committees, and other officers will be found attached.

Respectfully submitted,

DAVID STARR JORDAN,

December 31, 1911.

President.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK.

For the year 1910-1911 the department faculty consisted of Augustus T. Murray, professor; Ernest Whitney Martin, assistant professor, and Blanch Rible, assistant. One course was also given by Associate Professor Elmore, and one by Mr. Knowlton, of the Department of Latin.

The following courses were given, with the attendance noted:

INSTRUCTOR	COURSE	Hours	Attendance	
		Week-ly	1st Sem.	2nd Sem.
Murray	7.	2	39	.....
Murray	9.	3	4	.....
Murray	10.	3	.....	4
Murray, Martin	12b.	1-3	.....	8
Murray	13.	4	.....	5
Murray	14.	2-6	4	5
Murray	15.	2-4	3	3
Murray	16.	2	34	.....
Martin	17.	2	.....	99
Martin	1.	5	6	5
Martin	4.	2	3	5
Martin	12.	2	6	6
Elmore	2.	3	4	.....
Knowlton	3.	3	.....	2
Knowlton	5.	3	2	.....
			105	142

Dr. Martin also gave two courses in the Department of Latin.

During the year an attempt was made to enhance the value of the work of the first two years by adapting the instruction, as far as possible, to the needs of the individual student. This proved most successful, and it has been made the settled policy of the department.

The contribution toward the support of the American School at Athens was again paid out of department funds. It is earnestly hoped that the University may see fit to assume this obligation.

AUGUSTUS TABER MURRAY,
Professor of Greek.

LATIN.

The year 1910-11 was marked by the absence on leave of Professor Fairclough as professor in (and for a time acting director of) the American School of Classical Studies at Rome. Instruction in the Department was given by Associate Professor Jefferson Elmore, Assistant Professor Benjamin O. Foster, Instructor Philip A. Knowlton, and Assistant Esther J. Spencer, with the co-operation of Assistant Professor E. Whitney Martin of the Greek Department, and of Professor George Hempl of the Department of Germanic Languages. Professor Martin's work in the department averaged three hours a week each semester. Courses in Greek of an equivalent number of hours were given by Professor Elmore and Instructor Knowlton. Professor Hempl lectured two hours a week each semester on his discoveries in the Italic dialects.

There were 42 major students enrolled in the department. Of these 13 were graduates, 6 receiving the A. M. degree.

The following is a list of the courses given during the year, with the attendance in each:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Elmore	Introductory	3	8	6
Spenser	Cicero and Virgil.....	3	8	6
Elmore	Terence, Cicero and Horace.....	3	11	10
Foster	Terence, Cicero and Horace.....	3	8	7
Knowlton	Justinian	2	10	13
Martin	Prose Composition I.....	2	20	16
Martin	Horace, Satires and Epistles.....	3	9	.....
Foster	Livy and Tacitus.....	3	.....	7
Foster	Prose Composition II.....	2	16	16
Foster	Roman Comedy.....	2	8	.....
Foster	Cicero's Letters.....	2	.....	9
Knowlton	Pliny and Seneca.....	2	9	.....
Knowlton	Lucretius	2	.....	6
Knowlton	Juvenal and Martial.....	2	8	.....
Foster	Teachers' Course.....	2	14	.....
Elmore	Cicero's Philosophical Works	2	.....	3
Knowlton	Seminary: Cicero's Letters.....	2-6	8	9
Elmore	Roman Elegy.....	2	.....	6
Foster	Latin Epigraphy.....	2	.....	10
Martin	Venetic	2	5	.....
Hempl	Etruscan	2	.....	6
Hempl	Latin Palaeography	1	7	.....
Foster	Roman Private Life.....	2	38	.....
Knowlton	Roman History	2	.....	46
Elmore			187	176

JEFFERSON ELMORE,
Associate Professor of Latin.

GERMAN.

During the academic year 1910-11 the teaching staff of the department consisted of George Hempl and James Owen Griffin, professors; Karl G. Rendtorff and William Alpha Cooper, associate professors; Macy Millmore Skinner, assistant professor; Bruno Boezinger and Herman Hilmer, instructors; Mrs. N. Hilmer, assistant.

There were registered in the department during the year 65 major students, of whom 8 were graduates and 57 undergraduates. Of the graduate students, 3 were candidates for higher degrees, and at the close of the year the degree of Master of Art was conferred upon Mary Acheson, Florence Mildred Bowes and Lillie Belle Eygabroad.

The following is a tabular statement of the number of the students pursuing the various courses:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cooper, Skinner, Hilmer..	1. Elementary	5	76	69
Hempl, Griffin, N. Hilmer, Skinner, H. Hilmer	2a. 2d-Year Reading.....	3	140	129
Boezinger	2aa. Scientific Reading	3	42	40
Griffin, Cooper, Boezinger	2b. 2d-Year Composition	2	79	59
Griffin, Rendtorff	3. Classical Drama	3	44	29
Griffin	4. Modern Drama	2 or 3	28	26
Skinner	5. Modern Novel	2 or 3	49	39
Hempl	6. Advanced Grammar.....	2	12	11
Boezinger, Hilmer	7. Composition	2	36	29
Boezinger	8. Advanced Composition	2	15	9
Skinner	10. Schiller	3	14	9
Cooper	11. Goethe	3	24	14
Rendtorff	13. History of Literature.....	2	11	7
Hempl	14. Teaching of Modern Languages	2	.....	16
Rendtorff	16. Middle High	2	12	5
Rendtorff	16b. Advanced Middle High.....	3	3	3
Boezinger	17. Old High	2	1	1
Rendtorff	21a. History German Civilization	2	8	7
Hempl, Rendtorff, Skinner, Cooper....	23. Thesis Work	2	8	2
			602	504

GEORGE HEMPL,
Professor of Germanic Philology.

ROMANIC LANGUAGES.

During the year 1910-11 the teaching staff of the department consisted of John Ernst Matzke (died September 18, 1910), Associate Professors Oliver Martin Johnston and Colbert Searles, Assistant Professors Clifford Gilmore Allen, Albert Léon Guérard, Aurelia Macedonia Espinosa, Acting Instructor Charles Alexandre Guérard, Assistants Frederick Pope Anderson and Henry Haxo. The two latter were emergency assistants appointed for the first semester in response to a special request on account of large elementary classes.

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In addition Mrs. Sophie Boezinger (died July 17, 1911) and Mr. Le Roy Hamilton Stanton assisted in the correction of exercises, and Miss Alice Chapman had general supervision of the phonograph work.

The following table shows the courses given during the year, and the registration in each:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
C. A. Guérard, Anderson, Haxo	1a. Elementary French	3	83	80
C. A. Guérard..	1b. Elementary French, Read- ing Course	3	18	16
C. A. Guérard..	2. 2d-Year French Composition	2	13	10
Allen, C. A. Guérard, A. L. Guérard....	3. Modern French Reading.....	2	98	82
A. L. Guérard....	4a. French Conversation	1	12	9
Searles	4b. French Pronunciation	1	9	7
A. L. Guérard....	5. Reading and Writing of French	3	12	7
A. L. Guérard....	6. Advanced French Prose Composition	2	8	6
Searles	7. Outline Course in the His- tory of French Literature..	3	12	11
Searles	8. Classical French.....	3	20	17
Searles	9. History of French Literature in the Nineteenth Century	2	10	8
A. L. Guérard....	10. Jean-Jacques Rousseau.....	2	5	.....
Allen, Espino- sa, Haxo.....	12. Elementary Spanish	3	137	104
Allen	13. 2d-Year Spanish Composi- tion	2	19	17
Espinosa	14. Modern Spanish Reading.....	2	37	34
Espinosa	15a. Spanish Conversation	1	17	16
Allen	15b. Spanish Pronunciation	1	5	2
Espinosa	16. Advanced Spanish Composi- tion	2	6	5
Allen	17. Classical Spanish	2	18	12
Johnston	19. Elementary Italian	3	11	7
Johnston	20. Advanced Italian	2	7	6
A. L. Guérard....	24. Alfred de Vigny	3	5	.....
Johnston	25. Introductory to the Study of Old French	2	2	.....
Johnston	26. French Historical Grammar	2	2	2
Johnston	27. Old French Literature.....	2	.....	2
Johnston	28. Floire et Blancheflor.....	3	.....	2
			566	462

ENGLISH PHILOLOGY.

During the academic year 1909-10 Dr. William Dinsmore Briggs, of the Department of English Literature and Rhetoric, conducted the elementary course in Old English, and, as before, I wish to express my obligations to him for his faithful and successful assistance, which has enabled me to concentrate more energy on the advanced work of the department.

The most important work of the department was the research course, which was particularly intended to give the future teachers of English some practice in the independent working out of fresh material in the line of philological investigation. The term "philology" was taken in its fullest and broadest sense. The work during the first semester was devoted to a History of Lexicography; the second semester was devoted to special studies in English word history and terminology.

The following is a list of the courses given during the year:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Briggs	1. Old English	3	23	.....
Flügel	2. Chaucer (elementary)	2	51	.....
Flügel	3. History Early English Lit- erature	3	32	.....
Flügel	4. Middle English	2	10	.....
Flügel	7. Middle English Grammar....	2	.....	10
Flügel	11. Research	2	7	8
Flügel	8. Chaucer (advanced)	2	.....	34
Flügel	9. Ballads	2	.....	19
			123	71

EWALD FLÜGEL,
Professor of English Philology.

DEPARTMENT OF PHILOSOPHY.

During the year the department comprised Dr. Henry W. Stuart, professor; Dr. Addison M. Moore, acting professor; Dr. George H. Sabine, assistant professor; and Florence M. Woodhead, assistant. Dr. Sabine was absent on leave and spent the year as a member of the faculty of the Sage School of Philosophy in Cornell University. Dr. Moore's courses in the department during the second semester were cordially appreciated by all who availed themselves of the opportunity they offered.

The following were the courses offered, with the attendance :

INSTRUCTOR	COURSE	Unit Value	Registration	
			1st Sem.	2nd Sem.
Stuart	1. El. Logic	3	31	.....
Stuart	2. El. Ethics	3	14	.....
Moore	3a. Modern Philosophy	3	.....	44
Stuart	6. Adv. Logic	3	.....	19
Stuart	7. Practical Ethics	3	.....	10
Moore	8a. Evolution and Philosophy....	3	.....	22
Stuart	9. Outlines of Gen. Philosophy	2	17	13
			62	108

HENRY W. STUART,
Professor of Philosophy.

PSYCHOLOGY.

The staff of instruction in the Department of Psychology for the year was: Frank Angell and Lillien J. Martin, professors; John E. Coover, assistant.

The course of instruction given and the attendance of students are tabulated below :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Angell	1. Gen. Psychology	4	130	.....
Martin, Angell	2. Begin. Laboratory	3	18	20
Angell, Martin	3. Recognition	2	.....	3
Angell, Martin	4. Advanced Laboratory	3	3	3
Martin	5. Applied Psychology	4	39	.....
Martin	6a. Abnormal Psychology	2	.....	89
Angell, Martin	7. Current Psychol. Literature..	1	9	7
Martin	8. Psychol. of Thinking.....	1	.....	9
Angell, Martin	9. Research Work	1 to 8	2	3
			201	134

The evils of the large lecture courses have been the subject of comment in previous reports. On the other hand, it hardly seems right to shut students out of a course for which they are fitted and which they seem earnestly desirous of taking.

FRANK ANGELL,
Professor of Psychology.

EDUCATION.

The work of the department was carried on during the year 1910-11 by the following staff: Ellwood Patterson Cubberley, professor; Percy Erwin Davidson and Rufus Clarence Bentley, associate professors; Lewis Maddison Terman, assistant professor; Morris Elmer Dailey, lecturer; and Edward Samuel Evenden and Frances Elizabeth Short, assistants.

Professor Cubberley was absent the second semester of the year, acting as Lecturer on Education at Harvard University. All of his courses were dropped during his absence. Assistant Professors Davidson and Bentley were promoted to associate professorships during the year. Professor Bentley began his work as high school visitor during this year, and the good results of his visitations are already beginning to be evident. He spent the fall semester and the month of May in visiting high schools, and the second semester in class work at the University, all of his work here being in the field of secondary education. He is virtually a professor of secondary education, doing field work for a portion of each year. Mr. Evenden, who has organized the practice teaching during the past two years, leaves us to become head of the training school in the new Oregon Normal School, and Mr. Jesse Brundage Sears has been appointed as instructor to handle this work, and the work in the history of education formerly done by Professor Cubberley. Mr. George Archibald Clark has for the coming year been attached to the department as a lecturer on commercial education.

The following is the record of attendance in the several courses offered during the year:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cubberley	1. Public Education in America	2	158	.....
Davidson	2. Educational Theory—Intro- ductory	2	.....	121
Cubberley	3. History of Education in Europe	2	44	.....
Terman	6. Educational Psychology	2	.....	17
Davidson	7. Social and Moral Education	2	29	23
Davidson	6. Logic of Education.....	2	13	9
Cubberley.....	9. City School Administration..	2	24	.....
Bentley	13. Secondary Education	2	.....	76
Terman	14. Literature of Adolescent Psychology	2	.....	33
Bentley	15. School Administration	2	.....	6
Bentley	16. Types of Secondary Schools	2	.....	10
Evenden	17. Method and Management.....	1	33	21
Evenden	18. Practice Teaching	4	22	18
Davidson	23. Elementary	2	9	.....
Terman	24. Literature of Child Psychol- ogy	2	20	.....
Terman	25. Psychology and Hygiene of Educational Method.....	2	20	.....
Davidson	27. Educational Theory	2	5	5
Terman	28. Physical Aspect of Child.....	3	26	.....
Terman	29. School Hygiene.....	3	.....	37
Dailey	30. Training of Teachers	1	.....	7
Terman	34. Special	2 to 4	3	5
Cubberley	35. Seminary	2	11	.....
			417	388

The number of students enrolled as major students was 57, of whom 20 were graduates. Six of these completed their work for the M. A. degree, while one more will finish in September. This is the largest number of students enrolled in Education since the adoption of the present policy as to the taking of major students. The increase in major students is in large part due to the recent better rounding out of the special instruction within the department.

The growth of the department within the past five years may be seen from the following figures:

YEAR.	1906-7	1907-8	1908-9	1909-10	1910 11
Graduate students.....	7	4	8	8	20
Undergraduates	18	22	29	31	37
Total major students	25	26	37	39	57
Taking the A. B. degree.....	5	2	8	9	10
Taking the A. M. degree.....	.....	.....	2	4	6
Students, 1st Semester.....	245	257	301	415	417
Students, 2d Semester.....	275	243	411	417	388

Having a fairly well rounded course of instruction and a good corps of instructors, the department may be expected to show further increase in succeeding years.

ELLWOOD P. CUBBERLEY,
Professor of Education

HISTORY.

The faculty of the department for the year 1910-11 consisted of Professors Ephraim Douglass Adams, Arley Barthlow Show and Herbert Eugene Bolton; Associate Professor Edward Benjamin Krehbiel; Assistant Professors Henry Lewin Cannon and Payson Jackson Treat; and Instructor Percy Alvin Martin.

Professor Bolton has resigned to take the chair of American History at the University of California. Professor Edgar Eugene Robinson of Carleton College, Northfield, Minnesota, has accepted an assistant professorship of American History at Stanford University. Assistant Professor Treat has been promoted to an associate professorship. The student assistants of the year were Robert L. Duffus, William E. Dunn, Charles W. Hackett, Nora W. McCurdy, and Ruth E. Robertson.

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The following is a list of courses given in 1910-11, with hours of credit and attendance for each semester :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Martin	1. Training	1	74	57
Show	3a. Middle Ages	3	65	.....
	3b. Middle Ages.....	..	.....	69
Cannon	4a. English History.....	3	206	.....
	4b. English History.....	..	.....	207
Krehbiel	5a. European History.....	2	92	.....
	5b. European History.....	..	.....	95
Adams	7. United States History	2	92	77
Bolton	8. Westward Movement.....	3	42	51
Treat	9. The Far East.....	3	94	140
Cannon	11. English Constitutional	2	39	46
Martin	10. France	2	10	10
Martin	12. History of Germany.....	3	13	14
Show	14a. Empire and Papacy.....	2	6	.....
Show	14b. The Church and State.....	2	.....	3
Krehbiel	15. Europe Since 1789.....	3	41	43
Show	16. Teachers' Course	2	31	26
Cannon	17. Current Historical Literature	1	9	22
Adams	18. Eng. and Am. in Civil War..	3	17	10
Bolton	19. History of Southwest	2	28	32
Jordan, Kreh- biel	20. International Arbitration.....	2	.....	153
Treat	21. Tropical Colonization	2	17	.....
Treat	22. History of Australasia	2	.....	19
Show	27. German Const. History.....	2	1	.....
Bolton	28. Southwest History	2	8	6
Cannon	29. Seminary in English Hist.....	2	9	10
Martin	30. Renaissance in Italy.....	2	7	7
Adams	31. American Diplomatic Hist....	2	10	10
Krehbiel	32. Seminary in Modern Euro- pean History	2	7	11
Adams	35. American-European Rela- tions	3	1	.....
Treat	36. Philippines Under Spain	2	5	3
	Thesis	Vari- ous.	9	9
			933	1130

Important work now in preparation by member of the staff for publication is as follows:

E. D. Adams: Editing the correspondence of British diplomatic agents in Texas during the time that State was an independent republic (1836-1846). The material comes from the Public Record Office, London, the cost of transcribing being borne by the Texas State Historical Society:

H. L. Cannon: Preparation of a transcript and extension of the treasury account known as the Great Roll of the Pipe for the twenty-sixth year of the reign of King Henry III, A. D. 1241-1242.

E. B. Krehbiel: (1) English translation of Achille Luchaire: *La Société Française au Temps de Philippe-Auguste*. (2) A study of the Great Interdict of England.

A course of lectures on International Conciliation was given this year in the Department of History by President Jordan and Professor Krehbiel. This course, covering the history of war, peace, armament, international law, arbitration, and judicial determination, is the first yet offered in any American university on this, the most important political movement of our time. The work was taken by 153 students, all belonging to the upper classes of the University.

The number of major students registered in the department for the year was 185, of whom 159 were undergraduates, 23 graduates and 3 specials.

The Master of Arts degree was conferred in May, 1911, upon four students:

Jessie Loring Cook—Thesis: *Hubert De Burgh; a Study of the Period of Magna Charta*.

Grace Maple Davis—Thesis: *Anglo-Turkish Piracy in the Reign of James I.*

Robert Luther Duffus—Thesis: *Contemporary English Popular Opinion on the American Civil War*.

Ruth Edna Robertson—Thesis: *The Diaries of the Second and Third Expedition of Father Garcés*. (Translated and edited.)

These theses are typewritten, bound and deposited in the University Library.

EPHRAIM D. ADAMS,
Professor of History.

ECONOMICS AND SOCIAL SCIENCE.

The work of the department for the year 1910-11 was carried on by Professor Burt Estes Howard, Associate Professors Albert Conser Whitaker and Harry Alvin Millis, and Instructor Ira Brown Cross.

The courses given and attendance were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Cross	1. Elements of Economics.....	3	266	228
Whitaker	4. Money and Banking	3	68	41
Whitaker	6. Corporations and Trusts.....	2	49	28
Millis	8. Public Finance	3	12	.....
Millis	10. Labor Problems	3	29	.....
Millis	10a. Immigration Problems	3	.....	64
Cross	13. Socialism	3	46	.....
Cross	14. Economic History	3	.....	57
Millis	15. Am. Methods of Taxation..	3-5	.....	10
Whitaker	17. Value and Income	2	11	6
Millis	18. Principles of Economics.....	2	11	11
POLITICAL SCIENCE.				
Howard	30. Comparative Federal Gov't..	3	42	33
Howard	31. American Politics	3	112	.....
Howard	33. Parliamentary Government..	3	.....	37
Howard	34. Seminar in Polit. Science.....	2	17	12
			663	527

The number of major students registered during the year was 149, consisting of 8 graduates, 130 regular undergraduates, and 11 special students.

During the year Professor A. A. Young was absent on leave to give lectures on Economics at Harvard University. At the close of the year Professor Young resigned his position at Stanford to become Professor of Economics at Washington University, St. Louis, Missouri. Professor Young's resignation was followed by the appointment of Professor Alvin Saunders Johnson, of the University of Chicago, to be Professor of Economics at Stanford. Professor Johnson becomes executive head of the department for the year 1911-12. Associate Professor Whitaker was promoted to the rank of professor.

ALBERT CONSER WHITAKER,
Professor of Economics.

LAW.

The faculty of law for the year 1910-1911 consisted of Professors Frederic Campbell Woodward, Charles Henry Huberich, Arthur Martin Cathcart and Wesley Newcomb Hohfeld, and Associate Professors Charles Andrews Huston and Joseph Walter Bingham. The course in California Practice was again given by John Slater Partridge, Esq., of the San Francisco bar.

The registration of students in the law school was 124, of whom 45 were graduate students, 48 seniors in the pre-legal course and 31 special students. This is an increase of nearly 50 per cent over the registration for the year 1909-1910. The registration of students in the pre-legal course, excluding seniors who are counted as students in the law school, was 188, one less than the registration for the preceding year.

The courses of instruction given and the enrollment in each were as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Dept. Faculty....	a. Elementary Law	3	73	.....
Huston	1. Introduction to Law.....	2	.....	47
Huberich	2. Crimes	4	34	.....
Huberich	3. Constitutional Law	3-3	7	4
Huston	4. Municipal Corporations.....	2	.....	8
Woodward	10. Persons	2	21	.....
Bingham	11. Introduction to Prop.....	4-2	66	47
Bingham	12. Title to Land.....	4	31	.....
Bingham	16. Water Rights	3	.....	14
Bingham	17. Mining Law	2	.....	8
Cathcart	18. Torts	4-2	70	53
Cathcart	19. Quasi-Contracts	3	37	.....
Woodward	20. Contracts	3 3	85	71
Huberich	21. Bills and Notes	4	.....	33
Woodward	22. Sales	4	.....	29
Huston	23. Agency	4	.....	47
Huston	24. Partnership	3	18	.....
Huston	25. Private Corporations	4	19	.....
Hohfeld	31. Equity 1.....	4	.....	45
Hohfeld	32. Trusts	4	24	.....
Cathcart	35-37. Pleading	4	.....	25
Hohfeld	38. Evidence	3-3	19	19
Partridge	39. California Practice	2	.....	23
			504	473

For the first time in the history of the law school a summer term was held. It opened on May 31st and continued for eight weeks, enlisting the services of Professors Woodward, Cathcart, Huston and Bingham. The attendance was thirty, most of whom were regular students in the law school who welcomed the opportunity to shorten the period of their preparation for the bar. The enthusiasm and diligence of the students were most gratifying, and it is believed that if the experiment is repeated the attendance will be considerably larger.

The total number of volumes in the law library on August 1, 1910, was 14,452. During the period from August 1, 1910, to July 31, 1911, 732 volumes were added. Of these, 622 were acquired by purchase, 25 by gift and 85 by binding. The total number of bound volumes in the library on July 31, 1911, was 15,184. Perhaps the most notable addition to the library was the collection of the consolidated statutes of all the States, commenced last year but not yet complete. The completion of this collection and the appointment of a librarian who can devote all of his time to the care and conservation of the library and the completion of an adequate card catalogue are the most urgent needs of the library.

FREDERIC CAMPBELL WOODWARD,
Professor of Law.

GRAPHIC ART.

The personnel of the department faculty was as follows: Arthur Bridgman Clark, associate professor; Robert Barthlow Harshe, assistant professor; Mrs. Chloe Lesley Starks, instructor, and Miss Harriet Park, assistant.

Last year, as during the preceding year, the working rooms of the department have been greatly crowded. The only way to meet this difficulty seems to be a limitation of registration to the capacity of small classrooms.

No radical changes have been made in our courses of instruction, but the demands now made upon teachers in the public schools cause us to emphasize applied rather than pictorial art.

Exhibitions of paintings of art objects have been held as follows:

Paintings, landscape and figure subjects, loaned by the National Federation of Arts of Washington, D. C.

Paintings by Arthur F. Mathews of San Francisco.

Paintings by Mrs. Chloe Lesley Starks of Stanford University.

Embroideries from the Deerfield Society of Blue and White Needle Work.

Embroideries from Newcomb College of Tulane University, New Orleans.

The exhibitions of embroideries were made possible through the interest and courtesy of Mrs. Ellen Coit Elliott of Stanford University.

During the year Professor Harshe has made a number of mural paintings for the permanent decoration of the Stanford University Book Store, using the Santa Barbara Mission as a theme. Professor Harshe will, during a leave of absence for the coming year, select and secure paintings for the International Pacific-Panama Exposition both in this country and in Europe.

Mrs. Starks has painted many landscapes in water color and pastel, and gave an exhibition of her work in May. This comprised several local subjects and was deservedly appreciated.

During the year the following courses of instruction were given:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Starks	1. Elementary Still-Life ..	2-4	36	33
Harshe	2. Cast Antique	2-4	10	11
Harshe	3. Head from Life	2-5	18	14
Harshe	4. Color	2-4	10	3
Clark	5. Landscape	3	20	.....
Clark ..	6. Lectures	2	47	35
Clark	7. Organic Form	2-5	.....	15
Clark	8. Perspective	2	.....	28
Starks	9. Science Illustration ..	2	5	.....
Clark	11. Design	3-5	16	13
Harshe	12. Illustration	2-5	1	8
Harshe	13. Handicraft	2-4	11	13
			174	173

ARTHUR BRIDGMAN CLARK,
Associate Professor of Graphic Art.

MATHEMATICS.

The instructing body was composed of Robert Edgar Allardice and Rufus Lot Green, professors, and Hans Frederik Blichfeldt, associate professor.

The program of work was as follows:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Blichfeldt	1. Trigonometry	2	24	.....
Blichfeldt	2. Solid Geometry	2	.....	13
Green	3. Algebra	5	70	.....
Green	4. Co-ord. Geometry.....	5	.....	36
Allardice	6. Plane Geometry	2	9	11
Blichfeldt	7. General Course	3	28	25
Allardice	9. Calculus	3	14	12
Green	10. Adv. Co-ord. Geometry.....	2	4	3
Allardice	11. Adv. Calculus	3	4	.....
Allardice	12. Theory of Functions.....	3	.....	4
Green	14. Mod. Co-ord. Geometry.....	2-3	.....	2
Blichfeldt	15. Diff. Equations	3	9	8
Allardice	16. Theory of Functions	2	2	.....
Blichfeldt	20. Theory of Groups	2-3	1	1
Allardice	21. Projective Geometry.....	2	2	2
			167	117

ROBERT EDGAR ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS.

During the year 1910-11 the active instructing force of the department was constituted as follows:

Professor Leander Miller Hoskins, Associate Professors Halcott Cadwalader Moreno and Sidney Dean Townley, Assistant Professor Ernest William Ponzer, and Instructor George Francis McEwen. Assistant Professor William Albert Manning spent the year in Europe on leave of absence. The following assistants were employed during the year: J. W. Armstrong, M. C. Ayers, E. P. Bly, H. C. Burbridge, A. E. Smothers, W. H. Thomas.

The courses of instruction given, with the enrollment in each, are shown in the following table :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
McEwen	a. Solid Geometry	2	17	.....
McEwen	b. Trigonometry	3	.....	23
Ponzer, Mc- Ewen	1. First-year Mathematics	5	129	109
Moreno, Town- ley, Ponzer....	2. Calculus	3	92	86
Hoskins, Mo- reno, Townley	3. Theoretical Mechanics	5	95	83
Townley	5. General Astronomy	3	22	.....
	5a. Practical Astronomy	3	.....	28
Moreno	6. Graduate Course	3	1	1
Hoskins	*3a. Hydraulics	3	.....	63
	*3b. Hydraulic Motors	3	17	.....
			373	393

*Scheduled under Engineering.

LEANDER MILLER HOSKINS,
Professor of Applied Mathematics.

CHEMISTRY.

The teaching staff in the Department of Chemistry for the year 1910-11 consisted of Professors John Maxson Stillman, Lionel Remond Lenox, Edward Curtis Franklin, Stewart Woodford Young, Associate Professor Robert Eckles Swain, Assistant Professor John Pearce Mitchell, Instructor William Henry Sloan, Acting Instructors Thomas Buck Hine, Paul Hermann Waldraff, Assistants Alice Ruth Berger (second semester), George Shambaugh Bohart, Thomas Meredith Cramer, Robert John Cross, Louis Dunshee Elliott, Arthur Henry Myer, William Edward Perdew, Ralph Edward Sanborn, Harry Johnson Sears.

During the absence in the second semester of the executive head, Professor L. R. Lenox acted as executive head of the department.

Professor E. C. Franklin has accepted for two years the position of Professor of Chemistry in the Hygienic Laboratory of the Bureau of Public Health and Marine Hospital Service at Washington, D. C., and is granted two years' leave of absence for that purpose.

Instructors T. B. Hine and P. H. Waldruff having resigned at the end of the year, Mr. H. J. Sears (Stanford, '11) was appointed instructor in general inorganic chemistry, and Miss Alice R. Berger (Stanford, '08) was appointed acting instructor, for the ensuing year.

Mr. George S. Bohart (Stanford, '11) was appointed instructor for the ensuing year to assist in organic chemistry during the absence on leave of Professor Franklin.

Attendance in various courses, Department of Chemistry, for year 1910-11:

LECTURE COURSES.

INSTRUCTOR	COURSE	Units per Week		Attendance	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Mitchell	*1. General Inorganic	2	2	110	95
Mitchell	*1 General Inorganic	3	2	48	38
Stillman	†2. Principles	3	-	30	-
Swain	†2. Principles	-	3	-	32
Franklin	*3. Organic	2	2	20	18
Stillman	24 Industrial	2	-	11	-
Lenox	†6. Qualitative Analysis	1	1	26	34
Franklin	*7 Advanced Organic	2	2	9	8
Young	*8. Physical Chemistry	3	3	11	9
Young	†10. Applied Physical	-	2	-	20
Swain	†11. Physiological	3	-	6	-
Stillman, Franklin	*12. Seminary	1	1	9	14
Stillman	†x. Special Reading	2-3	-	2	-
Swain	†3a. Medical Physiological	-	3	-	15
	Totals			282	283

*Courses continuing throughout the year.

†Courses completed in each or either semester.

LABORATORY COURSES.

INSTRUCTOR	COURSE	Unit Hours per Semester	Attendance	
			1st Sem.	2nd Sem.
Mitchell, Wald- raff, and As- sistants Cra- mer, Elliott and Perdew.....	A1. General Inorganic	2	42	.....
	A2. General Inorganic	2	66	48
Lenox, Hine.....	b. Qualitative Analysis	3	24	34
Franklin, Bo- hart	c. Organic Preparations	3	3	15
Sloan	d. Qualitative Analysis	3-4	31	20
Lenox, Sloan....	e. Mineral Analysis	3-4	2	6
Young, Cross....	f. Physical Chemical Measure- ments	3-5	2	.....
Swain	g. Physiological Chemistry.....	3	7	.....
Lenox, San- born	h. Assaying	3	15	15
Young	i. Physical Chemical Labora- tory	2-3	1	2
Lenox	x. Advanced, Special or Re- search	2-5	2	2
Franklin	x. Advanced, Special or Re- search	3-8	3	5
Young	x. Advanced, Special or Re- search	3-5	1	.....
Swain	x. Advanced, Special or Re- search	3-4	5	4
			<u>204</u>	<u>151</u>

All laboratory courses arranged to be completed in one semester.

Work of research carried on during the year was as follows:

Professor Franklin continued his investigations on reactions in liquid ammonia.

Professor Young continued his investigations on the super-cooling and super-fusion phenomena. He has also developed a process for the removal of sulphur dioxide from smelter fumes, a method now being tested on a commercial scale.

Professor Swain completed his investigations on the effects of sulphured fruits on the human organism and his report is now in the hands of the Government officials. He was also engaged with Professor Peirce

of the Department of Botany and Assistant Professor Mitchell of this department in continuation of the study of the effects of sulphur dioxide on various living plants.

Assistant Professor Mitchell, in addition to the work above mentioned, is continuing his examination of sources of water supply on the San Francisco peninsula.

Instructor Sloan has continued his series of analyses of certain mineral waters of the State, results of which will eventually appear in the publications of the United States Geological Survey.

Instructor Hine studied, under direction of Professor Franklin, certain thallium reactions in liquid ammonia.

Instructor P. H. Waldruff made a study of the composition of a Pacific Coast lepidolite and accompanying tourmaline, under direction of Professor Lenox.

Mr. H. J. Sears, under direction of Professor Franklin, prepared and studied a potassium compound of "saccharine."

Mr. R. J. Cross was associated with Professor Young in the study of super-cooling phenomena, and the results have been published in the Journal of the American Chemical Society.

Mr. A. H. Meyer, under direction of Professor Swain, studied the utilization of starch by the animal organism.

Mr. George S. Bohart was engaged in the study of nickel and cadmium ammonio compounds, under direction of Professor Franklin.

Mr. B. D. Shoemaker was engaged in the investigation of ammonia crystallization of various inorganic and organic compounds, under direction of Professor Franklin.

Mr. C. M. Fulkerson and Mr. A. H. Myer studied, under Professor Swain, the effects of thallium compounds on the animal organism.

Mr. F. F. Fitzgerald completed the requirements for the degree of Doctor of Philosophy.

JOHN MAXSON STILLMAN,
Professor of Chemistry.

PHYSICS.

The teaching faculty of the Physics Department for the year 1910-11 consisted of Professor Fernando Sanford, Associate Professor Frederick J. Rogers, Assistant Professor Elmer R. Drew, Instructor Perly A. Ross and Assistants Shirley Hyatt, Albert E. Caswell, Harry C. Burbridge and George W. Moffitt. Assistant Professor Joseph G. Brown was absent on sabbatical leave throughout the year.

The total registration of major students was 13, of whom 7 were graduates and 6 undergraduates. Two bachelor's, one master's and three doctor's degrees were given in the department.

The courses, with the enrollment in each for the year, are found in the course, are shown in the following table:

INSTRUCTOR	COURSE	Lecture Hours		Laboratory Hours		Attendance	
		1st Sem	2nd Sem	1st Sem	2nd Sem	1st Sem	2nd Sem
Rogers, Ross, Burbridge, Hyatt	1. Dynamics	1	1	5	2	22	14
Drew, Hyatt...	2. Electricity and Mag.	1	...	3	...	9	...
Sanford, Hyatt	3. Heat .....	...	1	...	2	...	3
Sanford, Burbridge	5. Elementary Optics	...	...	2	3	1	8
Drew, Caswell, Rogers, Moffitt ..	6. Engineering Physics	3	3	3	3	35	32
Sanford, Hyatt, Drew, Caswell ..	7. Physics for Medicine ..	2	2	2	2	22	16
Rogers, Moffitt	9. Electrical Meas. .	1	...	5	...	...	...
Rogers	9a. Photometry and Illumination .	...	...	...	1	...	4
Sanford	10. Adv. Optics ..	...	...	...	2	...	2
Drew ..	12. Analytic Mechanics	4	...	...	...	1	...
Sanford	13. Teachers' Physics..	1	1	...	...	8	8
Rogers	16. Kinetic Gas Theory	...	2	...	...	...	1
Sanford	19. Investigation ..	...	...	1 10	2-5	4	7
Sanford ..	20. Physical Theory of Elect ..	...	1	...	...	...	6
						128	101

FERNANDO SANFORD,
Professor of Physics.

GENERAL BOTANY.

The personnel of the department for the academic year 1910-11 was as follows: Professor Douglas Houghton Campbell, Professor George James Peirce, Assistant Professor Leonas Lancelot Burlingame, Acting Instructor J. I. W. McMurphy, and Miss H. D. M. Jolivette, Miss J. D. Randall, student assistants.

The courses, with the enrollment in each for the year, are found in the accompanying table:

INSTRUCTOR	*COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Campbell, Peirce, Bur- lingame	1. Elementary	3-3½	36	33
Campbell	2. Algae	5	4	....
Campbell	3. Archegoniatae	5	....	3
Peirce	5. Physiology	3	10	....
Peirce	7. Physiology	1	15	....
Burlingame	10. Technique	3	3	....
Campbell, Peirce	12. Investigation	2-5	2	....
			<u>70</u>	<u>36</u>

*With the exception of courses 7 and 8, all courses in this department are laboratory courses with one lecture a week.

Miss Jolivette was unable to reach the University for the first semester, and her place was filled by Miss Florence Williams.

The members of the staff have been engaged during the year in various lines of scientific work.

Professor Campbell has completed two volumes—one entitled "Plant Life and Evolution," shortly to appear from the press of Henry Holt & Company; the second volume, "Comparative Morphology of the Eusporangiatae," is published by the Carnegie Institution of Washington. Several shorter papers have been published, including a summary of the work on the development of the screw-pine (*Pandanus*), published in the "Annals of Botany."

Professor Peirce, on leave of absence, spent the second semester in the University of Wisconsin, where he took the place of Professor R. A. Harper, who was absent at the same time. While at Madison Professor Peirce was occupied with a microscopic study of plants injured by smelter smoke. This work was done in connection with Professor Peirce's former work in the study of the effects of smelter smoke on vegetation, made in conjunction with Professor Swain of the Department of Chemistry. The results of these investigations will furnish the fullest account yet made on this important subject, and will be published by the Federal Government.

Assistant Professor Burlingame has continued his studies on *Aran-caria*, which promise interesting results.

Miss Jolivette is engaged upon a series of experiments with certain fungi in connection with her thesis for the Ph. D. degree. This work will be continued during the next year.

The University has suffered a great loss in the recent death of Professor Dudley, associated with the University since 1893. To his labors we owe the fine herbarium, which is of great value and will remain as a monument to his devotion to his chosen science. Those who had the good fortune to come into contact with him, whether as pupil or colleague, will always remember him as an enthusiastic and inspiring teacher, absolutely devoted to the interests of his students. Moreover, his influence extended beyond the University, and his intense interest in, and his devoted labors for the cause of forestry were widely appreciated. By his death not only does the University lose a distinguished teacher but the State must mourn one of its most useful citizens.

Beginning with the academic year 1911-12 the two departments of Botany will be merged into one. Assistant Professor Abrams has been advanced to the rank of Associate Professor of Systematic Botany and will have charge of the Herbarium.

DOUGLAS HOUGHTON CAMPBELL,
Professor of Botany.

SYSTEMATIC BOTANY.

The instructing body of the department for the academic year 1910-11 consisted of Professor William Russell Dudley, Assistant Professor LeRoy Abrams and Acting Instructor James Ira Wilson McMurphy. The Herbarium assistants were Josephine D. Randall, Louis George Steck, Lucy Youse and Arthur Dickie Borden. The two last were for the second semester only.

Professor Dudley retired from active duties at the end of the first semester and was elected emeritus professor of botany by the Board of Trustees.

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The courses of instruction given and the enrollment in each were as follows :

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Abrams, Mc-	1. Spermaphyta	3	9	14
Murphy				
Abrams, Mc-	2. Geographical Distribution and Forest Botany	3	..	5
Murphy				
Dudley, Mc-	3. Fungi	4	8	....
Murphy	4. Elementary Taxonomy	2	..	9
Abrams	5. Compositae	2	7	....
Abrams	6. Advanced Fungi.....	2 or more	1	1
Dudley	8. Phytogeography	2 or more	1	1
Dudley, Abrams	10. Graduate Work .....	.....	2	2
Dudley, Abrams				
			—	—
			28	32

Miss Lucy Youse, a candidate for the Master's degree, completed a preliminary paper on the plant formations of Palo Alto and vicinity.

Miss Josephine Randall, in co-operation with Professor Dudley, continued her studies of the flora of the Monterey Peninsula.

Mr. McMurphy continued his studies of the *Madieae*, and also carried on some preliminary culture experiments with *Synchytrium*.

Assistant Professor Abrams published in the Bulletin of the New York Botanical Garden a paper comprising a phytogeographic and taxonomic study of the Southern California trees and shrubs, which embodied the results of several years' work. He also published a supplemented edition of his book on the "Flora of Los Angeles and Vicinity."

THE DUDLEY HERBARIUM.

Upon Professor Dudley's retirement he presented his entire botanical collections to the University. As an appreciation of this generous gift the Board of Trustees named the University herbarium in his honor. These collections, numbering approximately 50,000 sheets, principally of unmounted specimens, are especially rich in Sierra Nevada plants.

The mounted collections were increased by 4,177 sheets during the year and now total 34,981. The unmounted collections are estimated at 120,000.

LEROY ABRAMS,
Associate Professor of Botany.

PHYSIOLOGY AND HISTOLOGY.

The teaching force of the department for the year consisted of Oliver Peebles Jenkins and Frank Mace McFarland, professors; Clara S. Stoltenberg, associate professor; James Rollin Slonaker, assistant professor; Frank Walter Weymouth, instructor; Karl Ludwig Schaupp, laboratory assistant, and Jean Redman Oliver, Esther Skolfield, John Floyd Pruett and Roscal LeRoy Draper, mechanical assistants, the last two acting for one semester each. Assistant Professor Slonaker was granted sabbatical leave for the second semester.

In the following table of statistics the numbers by which the courses are designated are those used in the Register for 1910-11, to which reference may be made for explanation of the character of the courses:

INSTRUCTOR	COURSE	Unit Hours	Hours per Week		Attendance	
			Lec.	Lab.	1st Sem.	2nd Sem.
Jenkins, Slonaker, Weymouth	1. General Anatomy and Physiology	6	2	5	61	54
Jenkins, Slonaker	2. Physiology of Blood Circulation, Muscle..	3	1	5	28	.....
Jenkins, Weymouth	3. Physiology of Digestion, Respiration, etc.....	3	1	5		26
Stoltenberg	4. Structure of the Nervous System	3	1	5	15	.....
Stoltenberg	4b. Structure of Nervous System (Adv.Course)	2		6	2	.....
Stoltenberg	5. Histology of the Nervous System	3	1	6	.....	12
Jenkins, Weymouth	6. Physiology of Nervous System and Sense Organs	3	1	5	13	.....
Jenkins	8. Advanced Physiology ..	3	1	9	3	3
McFarland	9. Histology	3	1	6	29	22
McFarland	10. Histogenesis	3-5		9-15	2	.....
McFarland	13. Special Histology.....	2-3		6-9	3	6
Department	14. Journal Club	1	1		10	12
McFarland	15. Research in Histology..	3-5		9-15	1	3
					167	138

Professor McFarland completed a paper upon the Opisthobranch collections of the "Albatross" in the South Pacific, which will appear in the memoirs of the Museum of Comparative Zoology of Harvard University. He continued his work on the Opisthobranch Mollusca of California and Japan during the year. In the summers of 1910 and 1911 he was in charge of the summer session of the Marine Biological Laboratory at Pacific Grove, and during the latter part of the summer of 1911 prepared a report for the United States Bureau of Soils on the kelp resources of the California Coast in the vicinity of Monterey Bay.

Associate Professor Stoltenberg has been engaged on investigations of the nerve tracts in the brain and cord of rodents.

Assistant Professor Slonaker, while absent on leave in the second semester at Clark University, finished two papers, one on the normal activity of the albino rate, from birth to death—its rate of growth and duration of life; the second on the effect of a strictly vegetable diet on the same elements in the life of this rat. The first of these papers is to appear in the January number of the Journal of Animal Behavior; the second will appear in the Stanford University Series of publications. The remainder of his time Dr. Slonaker spent in visiting the laboratories of prominent Eastern universities.

Instructor Weymouth has completed his work on the true crabs (Brachura) of Monterey Bay, California, and the paper has been published as No. 4 of the Stanford University Series of publications. He has also been engaged in the study of the crabs of the California coast for the State Fish and Game Commission.

Mr. Jean R. Oliver, assistant in histology, completed a paper on the Spermatogenesis of the Fur Seal, *Callorhinus alascanus*.

Research work was also carried on by the following students: Miss L. L. Bland, on the development of the voluntary muscle in *Diemyctylus*; Mr. R. E. Fallas, on regeneration in the larval stages of *Diemyctylus*; Miss A. M. Jenkins, on the terminal sense organs in the skin of *Porichthys*.

OLIVER PEEBLES JENKINS,
Professor of Physiology.

HYGIENE.

The following table gives the statistics of the department for 1910-11:

INSTRUCTOR	COURSE	Hours per Week	Unit Hours	Enrollment	
				1st Sem.	2nd Sem.
Long Maloney Mosher Davis L'Anphere Cleveland	<i>General Education Courses.</i>				
	1. Personal Hygiene Gymnas- tics	3	1	Men 325 Women 111	258 159
	Long, Randall.. 2. Public Health	3 Gym. 2 lect. 2 lab. 2 lib.	2	17	27
	<i>Department Courses.</i>				
	Randall 3. Industrial Hy- giene	9 lib. & rec.	3	20	.....
Randall	4. Epidemiology	9 lib. & rec.	3	.....	10
Long Maloney Mosher Davis	5. Physical Train- ing Methods....	3-6 lab.	1-2	Men 8 Women 5	13 13
				486	480

The teaching staff for the year was as follows: Associate Professor William Freeman Snow, Assistant Professors Royce Reed Long and Clelia D. Mosher, Instructor Henry Wilfred Maloney, Acting Instructor W. R. D. Randall, Assistants Edna Grace Davis, Maud L'Anphere and Maude Cleveland, and the following student assistants: J. P. Crawford, C. M. Fulkerson, F. H. Hilton, R. H. Jesson, E. R. Knollin and J. H. Wiggins. Associate Professor Snow continued absent on leave as secretary of the California State Board of Health.

During the year much needed improvements were made in the women's gymnasium, adding new showers, dressing rooms and storage facilities. An appropriation has also been made for an addition to the main building, giving more office space, the construction of which should be completed during the summer. Drinking water has been piped to each gymnasium and sanitary drinking fountains installed. Additional locker and dressing rooms, office room and toilet facilities are greatly needed in Encina Gymnasium. The overcrowding and lack of room hampers our

work, and to effectively teach personal hygiene in an unsanitary environment is a difficult if not impossible task. The building of an addition, such as was proposed by the writer last spring, would relieve the congestion in this building and would give the University a good working equipment for several years to come.

In the future the work that has been carried on by this department will be divided, the technical courses in hygiene will be given by the Department of Medicine, and such general education courses as may be provided in personal and public health and in physical training will be given at the gymnasias.

ROYCE REED LONG,
Assistant Professor of Hygiene and Physical Training.

ZOOLOGY.

The faculty of the department consisted of Charles Henry Gilbert, George Clinton Price and Harold Heath, professors; John Otterbein Snyder, associate professor; Edwin Chapin Starks and Walter Kenrick Fisher, assistant professors, and S. S. Berry, laboratory assistant.

The following courses of instruction were given :

INSTRUCTOR	COURSE	Unit Hours		Attendance	
		Lect.	Lab.	1st Sem.	2nd Sem.
Price, Fisher....	1. Elementary Zoology.....	1	6	54	38
Fisher	2. Elementary Zool. (Spec.) ..	..	6	6	5
Heath	3. Invertebrate Anatomy.....	1	6	6	6
Heath	4. Invertebrate Embryology ..	..	6	.....	5
Heath	5. Invertebrates (Advanced) ..	..	6-9	4	4
Heath	6. Microscopic Anatomy.....	..	6	1	.....
Fisher	7. Invertebrates (Classifica- tion) .....	..	9	2	2
Fisher	8. Invertebrates (Spec. Syst.) .....	..	6-9	1	1
Snyder	9. Vertebrates (Class) .....	..	6	14	22
Snyder	10. Comp. Anat. Vertebrates..	..	9	5	5
Price	11. Vertebrate Embryology....	1	5	5	.....
Starks	12. Ichthyology .....	..	6-9	4	3
Gilbert	13. Ichthyology (Adv.) .....	..	6-15	2	2
Gilbert	14. Journal Club.....	2	.....	7	9
Snyder	15. Vertebrates (Adv.).....	..	.....	2	2
Snyder	16. Comp. Anat. Vert. (Adv.) ..	..	.....	2	1
				115	105

Professor Gilbert continued studies on the life histories of steelhead trout and salmon, especially in relation to economic problems involved. In collaboration with C. V. Burke a report was prepared on the fishes collected by the United States Fisheries steamer Albatross in Bering Sea in 1906. During the summer of 1911 statistical studies were made of the run of sockeye salmon in Puget Sound.

Professor Price was absent on leave during the second semester, spending the time in study in the embryological laboratory of the Harvard Medical School.

Professor Heath continued his work on a monographic report of the Solenogastres of the Western Atlantic Ocean. During the spring and summer of 1911 he was a member of the Branner-Stanford Expedition to Brazil.

Associate Professor Snyder continued investigations of western fresh-water fishes, having in preparation a paper on the Pajaro River basin. During the summer months he began a survey of the basin of the Quaternary Lake Lahontan in Nevada, with the assistance of C. H. Richardson, a student in the department.

Assistant Professor Starks investigated the osteology of various groups of fishes in relation to their lines of descent, and published several papers on this and related topics. During the spring and summer he was a member of the Branner-Stanford Expedition to Brazil, making collections of fishes about Para and Cape St. Roque.

Assistant Professor Fisher began the study of Philippine starfishes, collected by the United States Fisheries steamer "Albatross," 1907-10, and published preliminary papers on new forms in this collection. He published Part I of "Asteroidea of North Pacific and Adjacent Waters," and other papers on starfishes of Hawaii, North Pacific and Caribbean Sea.

Investigations by students in the department were as follows:

C. V. Burke: "A Biological and Taxonomic Study of the Cyclogasteridae."

F. W. Weymouth continued his studies on the systematic relationships of Crustacea from the west coast of the United States and on the life history of the California edible crab.

S. Stillman Berry: "Mollusks of Unity, Maine," "A New Sepiolid from Japan," "A Note on the Genus Lolliguncula," "Preliminary Notices of Some New Pacific Cephalopods."

William F. Thompson: The early larval stages of a limpet.

C. H. Richardson, Jr.: "Notes on a Little Known Species of Snake, *Chionactis occipitalis*."

William Mann investigated the life history of certain hitherto unknown parasitic protozoa of the white ant; and in collaboration with Professor Starks published a paper on "New and Rare Fishes from Southern California."

Frank K. Pomeroy studied the innervation of the decapod heart.

Miss Grace C. Steinbeck was concerned with the anatomy of certain Alaskan animals of unknown relationships.

CHARLES H. GILBERT,
Professor of Zoology.

ENTOMOLOGY AND BIONOMICS.

The faculty of the department in 1910-11 was composed of Vernon Lyman Kellogg, professor; Mary Isabel McCracken, assistant professor; Rennie Wilbur Doane, assistant professor and curator; Walter Kenrick Fisher, acting instructor in Bionomics; and Assistants W. M. Mann, E. J. Newcomer, J. H. Paine and C. Pemberton, with David Starr Jordan as Lecturer on Bionomics. The number of major students was sixteen, of whom four were graduate students.

Courses given were as follows, with attendance as noted:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
McCracken	1. Elementary Ent.....	3	22	24
McCracken	1a. Morphol. & Physiol. of Insects	3	7	10
McCracken	2. Class. and Devel. of Insects.....	2 or 4	5	2
Doane	3. Econ. Ent. Forest Insects.....	3	7	.....
Doane	3a. Econ. Ent. Orchard and Gar- den	2 or 3	.....	15
Doane	4. Econ. Ent. Coccidae.....	2 or 3	4	7
Kellogg	5. General Ent. and Insect Adap- tation	2	.....	17
Doane	6. Insects and Disease.....	2	8	.....
Kellogg	7. Advanced Work.....	2 or 5	7	8
Jordan and Kellogg	8. Organic Evolution.....	1	.....	94
			60	177

Investigations were carried on during the year by Professor Kellogg on heredity and variations in the silk worm (11th year), and on the parasites of birds and mammals; by Assistant Professor McCracken on the heredity of sporting melanism in silk worms (7th year); and by Assistant Professor Doane on the work of injurious insects in the smelter smoke regions of Shasta and Contra Costa Counties, on injurious insects of Palo Alto, and on the classification of the Tipulidae.

Recent graduates of the department have received appointments as professional entomologists in the United States Bureau of Entomology.

The pressing need of the department is, as stated in the last report, a vivarium or insectary for the better carrying on of certain kinds of work connected with the study of insect biology and economic entomology. Such an insectary has become indispensable for the proper development of the department.

VERNON LYMAN KELLOGG,
Professor of Entomology.

GEOLOGY AND MINING.

The department faculty for the year 1910-11 consisted of Professors J. C. Branner, J. P. Smith, Associate Professor A. F. Rogers, Assistant Professors D. M. Folsom, G. H. Clevenger and L. W. Bahney, Instructors J. R. Pemberton, E. C. Templeton, Acting Instructor A. T. Schwennesen and Assistants G. A. Macready, H. F. Humphrey and H. W. Young.

Instructor J. R. Pemberton resigned at the end of the first semester to accept a position on a Government geological survey in the Argentine Republic, South America, and E. C. Templeton was appointed to fill the vacancy.

The following additions to the equipment of the department were made during the year:

In Mining: Eight models illustrating foreign practice in mining, timbering, etc., were purchased from Richard Braun of Freiberg, Saxony. Models of an oil derrick and of a Harz jig were made by T. N. Turner.

In Geology: One desk and a set of plain pine book shelves were added.

In Metallurgy: The principal items of equipment added are: A bookcase, a Welsbach lamp, a Keller gold balance, a Case gasoline burner, an amalgam press, drawings for lectures, and models of furnaces.

The following gifts should be mentioned: A Case muffle furnace and an oil burner from the Denver Fire Clay Co.; a Braun chipmunk crusher and a gasoline burner with attachments from the Braun-Knecht-Heimann Co.

In Paleontology: A set of fossils was purchased from F. Krantz, Bonn, Germany.

In Mineralogy: A diamond saw, a specific gravity balance, seven mineral cabinets and a hot plate were the principal additions.

During the summer months Dr. Branner, as chief, took a party of eight Stanford naturalists on an expedition to South America to study the geologic and biologic conditions of the northeast coast of Brazil. Through the co-operation of the Brazilian Government and of personal friends much valuable material was collected and brought back to the University. It will be reported upon later.

Professor Smith spent some time collecting fossils in Shasta County, California, and in Oregon.

Professor Clevenger went to Canada to do some practical metallurgical work at the mines of the Nipissing Company at Cobalt, Ontario, Canada.

Professors Folsom and Bahney visited some of the mining districts in Arizona.

Professor Rogers continued his scientific work in the mineralogical laboratories here.

The following table shows the courses given in the department during the year and the attendance of students:

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Branner	1. Elementary Geology.....	3	236	.....
Branner	1a. Physiography	1	.....	58
Branner	2. Economic Geology	2	.....	75
Macready, Tem- pleton	3. Topographic Geology	4	.....	27
Macready, Tem- pleton	4. Field Geology	5	.....	25
Rogers, Hum- phrey	5. Mineralogy	3	38	36
Rogers	6. Petrography	2	21	21
Smith	7a. Paleontology	4	5	.....
Smith	7b. Historical Geology	4	.....	27
Smith	8. Paleontologic Research	2-5	10	5
Rogers	9c. Petrology of Igneous Rocks....	2	.....	5
Rogers	9d. Paragenesis of Minerals.....	2	9	.....
Rogers	9e. Chemical Mineralogy	3	2	3
Smith	Mining 1—Mining Methods.....	3	30	27
Folsom	10. Advanced Paleontology	2	9	12
Folsom, Clev- enger	Mining 2—Ore Dressing	2	.....	41
Folsom	Mining 7—Mine Thesis	4	2	.....
Clevenger, Bahney	Metallurgy 8—General Metallurgy	4	.....	41
Clevenger	Metallurgy 9—Metallurgy of Con- structive Materials	2	64	.....
Clevenger	Metallurgy 10—Metallurgy of Gold and Silver.....	2	22	.....
Clevenger	Metallurgy a—General Metallurgy, Laboratory	2	.....	8
Clevenger	Metallurgy b—Metallurgy of Gold and Silver, Laboratory.....	2	5	3
Clevenger	Metallurgy d—Metallurgical Re- search	2	.....	2
			453	416

J. C. BRANNER,
Professor of Geology.

CIVIL ENGINEERING.

The teaching staff of the department for the year 1910-11 consisted of Professors Charles D. Marx, Charles B. Wing, John C. L. Fish, Instructors John H. Foss and Charles Moser, Assistants M. C. Ayers, C. E. Blee, J. E. Elliott, Herman Endres, N. M. Halcombe, R. L. Hughes, Jr., W. B. McMillan, R. E. Millsap, M. G. Parsons, A. C. Sandstrom, S. B. Shaw, Nelson Taylor, R. L. Vaughn.

During the past year the courses as listed below were given in the department. In addition Dr. Hans Zinsser of the Medical School gave a special elementary course of five lectures on bacteriology to the students in water supply engineering, and Dr. Mitchell of the Chemistry Department delivered, before the same students, a lecture on the interpretation of the chemical analysis of water. The Department of Civil Engineering appreciates the courtesy shown by these colleagues in meeting its special needs and thanks them. In view of the great interest shown in road construction, a special seminary course, for which no credit was given, was arranged for in the second semester of 1910-11.

INSTRUCTOR	COURSE	Unit Hours	Attendance	
			1st Sem.	2nd Sem.
Foss and As- sistants	1a. Eng.	1	92	3
Foss and As- sistants	1b. Eng.	1-4	122	103
Fish and As- sistants	4a. C. E.	2-5	47-34	.....
Fish and As- sistants	6a. C. E.	5	.....	27
Fish and As- sistants	6c. C. E.	1-3	.....	11
Fish and As- sistants	6b. C. E.	2	20	.....
Wing and As- sistants	2. Eng.	5	91	.....
Wing and Foss	8a. C. E.	3	30	2
Wing and Moser	8b. C. E.	5	.....	29
Wing	8c. C. E.	2-3	4	8
Wing	9. C. E.	5	34	32
Hoskins	3a. Eng.	3	.....	63
Hoskins	3c. Eng.	3	17	.....
Marx	12. C. E.	5	37	.....
Marx	13. C. E.	5	.....	37
Marx	16. C. E.	2	1	1
Marx	Irrigation	5-10	2	1
Marx	Road Seminary .....	.....	.....	16
			531	333

In the spring of 1911 the Board of Trustees took final action on the recommendation made some years ago in the matter of changing the present location of the power-house. As soon as the new power-house is completed the old power-house will be equipped as an instructional laboratory on the mechanics of materials, and a small hydraulic laboratory will be built. Sufficient funds for the first equipment of both of these laboratories have been set aside by the Board of Trustees. The department gratefully acknowledges this action taken, and knows that it would have been done some years ago had not the disaster of 1906 made serious inroads upon the finances of the University.

CHAS. D. MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING.

The teaching force in the department for the year 1909-10 was as follows: William Frederick Durand, Professor of Mechanical Engineering; Guido Hugo Marx, Professor of Machine Design; William Rankine Eckart, Associate Professor of Experimental Engineering; Everett Parker Lesley, Assistant Professor of Mechanical Engineering and Superintendent of Shops; Lawrence Edminster Cutter, Instructor in Drawing; Charles Norman Cross, Instructor in Experimental Engineering; Frank Oakes Ellenwood, Instructor in Experimental Engineering; Edward John Stanley, Instructor in Woodworking and Pattern Making; James Bennett Liggett, Instructor in Foundry; Theron James Palmateer, Instructor in Machine Shop; Robert Henry Harcourt, Instructor in Forge Shop.

During the first semester 1,111 student credit hours of instruction were given by 11 instructors, or an average of 100 per instructor. The similar figures for the second semester are a total of 1,375 student credit hours, or an average per instructor of 125.

The classes taught and number of students in attendance are shown by the following tabular presentation :

INSTRUCTOR	COURSE	KIND OF WORK	Hours Credit	Attend- ance	
				1st Sem.	2nd Sem.
Harcourt	1a, 1b	Lect. and Shop..	1-3	63	50
Liggett	3a, 3b	Lect. and Shop..	1-3	33	45
Stanley	5, 6a, 6b.....	Lect. and Shop..	1-3	70	73
Palmateer	7a, 7b, 8.....	Lect. and Shop..	1-3	30	50
Lesley	9.	Lecture	1	.....	3
Cutter	11. El. Mach. Drawing..	Drawing	2 or 3	67	45
Marx, G. H.....	13a. El. Mach. Design....	Lecture	3	.....	42
Marx, G. H.....	13b. El. Mach. Design....	Drawing	2	.....	42
Marx, G. H.....	14. Machine Design.....	Lect. and Draw.	4	6	6
Marx, G. H.....	15. Machine Design.....	Lect. and Draw.	5	5	.....
Marx & Cutter	16. Adv. Machine De- sign	Lect. and Draw.	3	8	6
Eckart Cross Ellenwood	21. Calibration and use of engineering ap- paratus	Lect. and Lab....	3	.....	27
	22. Testing of Engines and boilers	Lect. and Lab....	3	22	.....
	23. Testing of Pumping Machinery, Power Plant Auxiliaries, etc.	Lect. and Lab....	3	.....	9
	24. Abridged Course in Experimental En- gineering	Lect. and Lab....	3	.....	33
	25. Advanced Course in Experimental Eng.	Laboratory	1-5	.....	3
	31. Heat Engines.....	Lect. and Office Work	3	67	.....
Durand	33. Heat Engines.....	Lect. and Office Work	3	.....	30
Durand	34. Thermodynamics	Lecture	1	.....	6
Durand	35. Power Plants.....	Lecture	2	24	.....
Durand	36. Pumping Machinery	Lecture	2	.....	33
Durand	37. Seminary	Lecture	1	5	15
				400	518

The general development of the work in the various branches of the Department of Mechanical Engineering has followed along lines similar to those discussed in previous reports, and further progress has been made in developing and co-ordinating the various lines of work in the department.

The general policy of adding some valuable definite item of equipment in the shops and laboratories has been followed by the purchase of a new saw table for the pattern shop.

The general needs of the department include further additions to the teaching force to cover important lines of work and further large additions to the equipment in the shops and laboratories in order to render such instruction most effective.

WILLIAM FREDERICK DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING.

The personnel of the department during the year was made up as follows: Harris Joseph Ryan, professor; Samuel Barclay Charters, Jr., and William Arthur Hillebrand, assistant professors; Eugene Garrison McCann, assistant.

The lecture, laboratory and class instruction, and the corresponding number of students in attendance are given in the accompanying table:

INSTRUCTOR	COURSE	Lectures	Class	Design	Lab.	Attendance	
						1st Sem.	2nd Sem.
Ryan, Charters, Hillebrand	A	1	....	....	....	25	20
Charters, McCann, Hillebrand	1.	3	....	....	1	48	....
Hillebrand	2a.	1	....	....	....	19	....
		....	4	....	....	....	18
Charters, McCann, Hillebrand	2b.	....	....	....	4	....	18
Ryan	3a1.	4	....	....	....	15	....
		2	....	....	....	....	15
Charters	3a2.	2	....	....	....	....	30
Charters	3a3.	2	....	....	....	....	26
Charters, Hillebrand	3b1.	....	....	....	4	15	....
Hillebrand	3b2.	....	3	....	....	15	....
Ryan	3c1.	....	....	4	....	....	9
Charters	3c2.	....	....	4	....	....	6
Hillebrand	3c3.	....	....	4	....	....	1
Charters	10.	....	....	....	1	....	1
						137	144

The most important feature of progress in the department during the year was made through the new one-hour "survey" course required of all students during the first five semesters after regular entrance. The object

sought in this course is to acquaint the new student with the nature of electrical industries and the sort of human character, ability and training demanded for success therein. This is accomplished both by the things the student is told and the things he is made to do and to think about. Messrs. Charters and Hillebrand have covered this undertaking in their paper before the Society for Promotion of Engineering Education, referred to below.

In other respects the progress of the department has been normal along the lines presented in previous reports.

Gifts were made to the University for the department as follows:

Exhibit case containing carbon products of the National Carbon Co., Cleveland, Ohio.

Part of the disconnecter switch showing effects due to corona when used on the 100,000 volt transmission of the Central Colorado Power Co., Mr. E. L. West, general manager.

During the year the series of high-voltage investigations undertaken to determine the underlying causes of the dielectric failure of the atmosphere about a high-voltage transmission line and of the insulating oil used in the corresponding transformers was brought to a close. A complete report of this work was made in a paper by Mr. Ryan, presented and discussed at the January, 1911, meeting of the American Institute of Electrical Engineers in New York City, and published in the January and May, 1911, Proceedings of the A. I. E. E., Vol. XXX, pp. 1 and 964.

The laboratory high-voltage studies that resulted in the development of the electrostatically operated cathode ray power diagram indicator were presented in a paper by Mr. Ryan that was read and discussed at the Pacific Coast convention of the A. I. E. E., held in Los Angeles, April 27th. A paper by Messrs. Charters and Hillebrand on "An Engineering Course for Underclassmen" was read by Mr. Charters at the Pittsburgh meeting of the Society for the Promotion of Engineering Education. At the October, 1911, meeting of the San Francisco Section of the A. I. E. E. a paper by Messrs. Charters and Hillebrand on the problem of technical education with special reference to conditions on the Pacific Coast was read and discussed. The publication of these papers is noted elsewhere in the President's report.

The following lectures were given by visiting electrical engineers, to whom the department gratefully acknowledges its indebtedness for their helpful interest in its work and duties:

"The Engineer as a Student," by Mr. C. O. Mailloux, consulting engineer, New York City.

"Voltage Regulators for Transmitting Circuits," by Mr. A. S. Heyward, electrical engineer, General Electric Co., San Francisco.

"The Present-Day Aspect of the Factories of the Westinghouse Electric and Manufacturing Co. at Pittsburgh, Pa.," by Mr. Waldo C. Cole, electrical engineer, Westinghouse Electric and Manufacturing Co., San Francisco.

"The Opportunities of the Electrical Engineer Graduate," by Mr. A. L. Alvord, electrical engineer, General Electric Co., San Francisco.

•
HARRIS JOSEPH RYAN,
Professor of Electrical Engineering.

MEDICINE.

The personnel of the department faculty for the year has been as follows: Professors Adolph Barkan, Henry Gibbons, Joseph Oakland Hirschfelder, Stanley Stillman, Emmet Rixford, William Ophüls, Oliver Peebles Jenkins, John Maxson Stillman, Arthur William Meyer, Frank Mace McFarland, George Clinton Price, Albert Cornelius Crawford, Hans Zinsser, Clinical Professor William Fitch Cheney, Associate Professors William Freeman Snow and Robert Eckles Swain, Assistant Professors James Rollin Slonaker, Clara S. Stoltenberg, Frank Ellsworth Blaisdel, and Ernest Charles Dickson, Instructor Ruskin M. Lhamon and Assistant Georgina Spooner.

Instruction in medicine was given to two classes, and January, 1911, the second year students began work in San Francisco in the buildings formerly the property of Cooper Medical College. That institution had only third and fourth year students and graduated its next to last class in May. Next year (1911-12) Stanford will have three classes and Cooper Medical College one, made up only of senior students, and July 1, 1912, Stanford will come into complete control of the Cooper Medical School buildings and Lane Hospital, beginning in September of that year the instruction of a full quota of classes.

During the past year sixteen students were registered in medicine, with six in the second year class, a number of the first class having gone to eastern institutions, where their Stanford work was given full recognition. Five of the first year class are already holders of A. B. degrees. Besides the regular students in medicine a number of others have taken work in the divisions of bacteriology and anatomy. Numerous applications for admission to the Medical Department are constantly being made, but because of the advanced standards set it will take some time for prospective students to properly prepare themselves. Fortunately, Stanford has, since its beginning, prepared students thoroughly for medical work, so that we have a certain number of these from which to draw. The number of medical students has decreased at most of the medical schools of the United

States because of the rather general elevation of admission standards and the previous overcrowding of the profession with the graduates of low standard schools. With its present laboratory equipment, Stanford can handle classes of twenty-five to thirty readily and there is a good prospect that that number can be expected as soon as time has elapsed for individuals to properly prepare themselves for admission.

The principal faculty changes have been the resignation, January 1, 1911, of Professor J. M. Stillman as acting executive and the return from leave of absence of Dr. R. L. Wilbur, executive head, to take his place, the placing on the emeritus roll of Professors Adolph Barkan and Henry Gibbons, Jr., the elevation of Dr. Hans Zinsser to the professorship of bacteriology, the change in title of Dr. William Fitch Cheney to that of clinical professor of medicine, the transfer of Dr. William F. Snow from associate professor to clinical professor of hygiene and public health. Assistant Professor Clara Stoltenberg has been made associate professor of physiology. Professors Barkan and Gibbons, while being placed on the emeritus list, are retained by special assignment as active members of the faculty organization, and by courtesy members of the University Council. Professors Stanley Stillman, Rixford and Hirschfelder have also been made members of the University Council.

The first class in medicine in San Francisco was instructed in surgery by Drs. Stillman and Rixford, in medicine and therapeutics by Dr. Wilbur, in applied anatomy by Dr. Blaisdell, in pathology by Drs. Ophüls and Dickson, and in pharmacology and prescription writing by Dr. Crawford.

The laboratories for the work in anatomy, pharmacology and bacteriology at Stanford have been completed and their equipment is already adequate for excellent work. The pathological work in San Francisco is being carried on with the apparatus and laboratory formerly used by Cooper Medical College for that purpose. The physiology laboratory in the college building has been arranged to serve as a laboratory for medical research. The clinical material of the dispensary has been used by the University in the teaching of past year by the courtesy of the Cooper faculty. With an increasing number of classes, more and more of the various clinics will come under the control of the University. When the new Lane Library is built the space now occupied by it in the college building will make room for the much needed extension of the clinics.

The Lane Medical Library is an excellent one and has been and will be of inestimable value to Stanford. The binding and cataloguing of the books has gone rapidly forward and another year will see the sets of principal journals bound and easy of access.

The divisions of the Medical Department have been rearranged and are now as follows: Anatomy, bacteriology, chemistry, hygiene and pub-

lic health, medicine and subdivisions, obstetrics and gynecology, pathology, pharmacology, physiology, and surgery and subdivisions. The Department of Hygiene, except for certain executive functions, has been transferred to the Medical Department in San Francisco.

A good foundation for sound medical instruction upon a true University basis has been laid. The aim of the future should be to create conditions for the clinical years similar to those now prevailing for the first two years of the medical course. This will mean additional expense for laboratories and professorships. As soon as possible after the Lane Hospital comes under the control of Stanford it should be converted into a University hospital. The proposed construction of the new Lane Library building upon the lot across the street from the Medical building in San Francisco, assured by an additional gift of \$20,000 from the directors of Cooper Medical College, will add greatly to the efficiency of the institution. With the hospital, library, laboratories, clinics and lecture rooms all so well concentrated and arranged the appropriation of an adequate amount for salaries and running expenses will permit of the best grade of medical work for the moderately sized classes that are to be expected for some years.

RAY LYMAN WILBUR,
Professor of Medicine.

THE SEASIDE LABORATORY.

The twentieth session of the Marine Biological Laboratory at Pacific Grove began on Wednesday, May 31st, and continued for six weeks, closing on July 11th.

The laboratory was in charge of Professor F. M. McFarland, assisted by Mr. Karl L. Schaupp, as teaching assistant, and by Mr. J. R. Oliver, as laboratory attendant.

Twenty-four students were in attendance, distributed as follows:

1. General Marine Zoology, 13 students.
2. Advanced Marine Zoology, 4 students.
3. General Embryology, 7 students.
4. Research in Cytology, 1 student.

Mr. J. R. Oliver, in addition to his duties as attendant, completed a paper on the "Spermatogenesis of the Fur Seal."

The following investigators were in attendance at various times during the past year, the most of them during the summer months:

Mr. W. S. Allen, graduate student in the University of Illinois, whose work was on the phenomena of regeneration in certain marine Annelids.

Mr. R. J. Beck, assistant in ornithology in the Alexander Museum of Vertebrate Zoology at the University of California, in the making of collections of birds for the museum.

Professor Charles H. Gilbert, Leland Stanford Junior University, studying the life history of the salmon.

Professor Charles W. Greene, University of Missouri, studying the physiology of the salmon.

Dr. Nettie M. Stevens, associate in biology, Bryn Mawr College, engaged in cytological studies upon various invertebrates.

Mr. George T. Kline, biological artist and technician, University of Missouri, assisting Professor Greene.

Mr. H. B. Judy, artist of the Brooklyn Institute Museum, engaged in making studies of marine life to be used in mural paintings for the Hall of Invertebrates in the Brooklyn Museum.

In the early part of the summer the Monterey Light and Power Company rewound the motor of the laboratory pumping plant, free of charge, thus adapting it to the form of electric current now furnished to the laboratory.

FRANK MACE MCFARLAND,
Instructor in Charge.

APPENDIX I

REPORTS OF COMMITTEES

STUDENT AFFAIRS.

The Committee on Student Affairs deals in general with the unpleasant side of University life. However excellent, devoted, loyal and moral the great body of the students may be, there are always some who fail to be true to themselves. With these the committee is called upon to deal. During the year there have been fourteen cases requiring special discipline, these ranging from thoughtless inadvertence to the verge of criminality. Without any properly authorized officers, and with no means of securing evidence, the work of the committee in dealing with offenders is often disheartening. It is hoped that in time the student body may be prepared to deal with the few among their number who indulge in irregular or immoral practices. There is nothing of greater value to the individual student than to be surrounded by a clean-minded body of associates.

The Committee on Student Affairs permits the holding of social and dramatic events on Friday and Saturday evenings, and evenings just preceding holidays. It is insisted that all entertainments close at midnight and be properly chaperoned. Relative simplicity in decoration and economy of expenditure generally, in connection with such entertainments, is encouraged.

There is a suggestion towards using Friday evenings for the meetings of academic and departmental organizations, leaving only Saturday evening free for dances and purely social affairs. The committee is now awaiting instructions from the Academic Council in this matter.

The rule limiting individuals to participation in but one dramatic performance each semester works well. It distributes both the burdens and the benefits of dramatic activity among a greater number of students. It has in no way lowered dramatic standards. Only by the utmost firmness, however, is this rule maintained, as constant petition is made for its suspension in favor of this or that dramatic enterprise.

The committee has had various conferences with the editors of the college papers and with the correspondents of city journals with a view to securing accuracy in their reports of University affairs. The results have been in general encouraging, though slips frequently occur even with men of the best intentions.

The form of hazing called "tubbing" has been virtually brought to an end, with the co-operation of the Encina House Committee, which repre-

sents the responsible government of the hall. Conferences have been held with each fraternity president, and it seems probable that this objectionable custom will be entirely abolished. All forms of hazing are forbidden.

On the whole, the penalties meted out by the committee this year have been fewer and less severe than on most previous years. The question of what to do with the delinquent student is always a difficult one, and there is no possible rule which can cover the great variety of such cases.

ARTHUR BRIDGMAN CLARK,
Chairman.

COMMITTEE ON DELINQUENT SCHOLARSHIP.

The records of the committee for the year 1910-11 indicate that 116 students were judged to have incurred a "first failure," not having completed satisfactorily two-thirds of the work for which they were registered. Of these, 81, or approximately 70 per cent, availed themselves of the privilege of continuing their work without interruption the semester succeeding that in which the failure was incurred. In addition to the above, 59 students were requested to withdraw from the University because of failure in their studies, 21 of these being then on probation from the previous semester, 25 having incurred and 13 being denied a second trial because of failure in practically all the courses for which they were registered.

Of the total of 175 failures for the year, 157 were men and 18 women, or, stated in percentage of the number of each group registered in the University, 13 per cent of the men failed and 3 per cent of the women.

In the following table, men and women are grouped separately by residence, the percentage of failures being given separately for each group:

<i>Residence—</i>	MEN.	Total Number	Per Cent of Failures
Palo Alto and Mayfield.....		331	10
Encina Hall		280	8.5
Private residence on Campus.....		110	17
"Commuters" (from San Jose, etc.)..		110	10.7
Fraternities		361	18.7
	WOMEN.		
Palo Alto and Mayfield.....		124	4.7
Roble Hall.....		105	2
Madrono Hall and private residence on campus.....		140	4
"Commuters" (from San Jose, etc.)..		34	0
Sororities		163	2.4

Comparing this table with the similar one published in the President's report for 1909, an interesting correspondence is observed. In both years the most favorable residence for men, so far as their scholarship is concerned, is Encina Hall, and by far the least favorable is in the fraternities and in private residences on the campus. Among the women no failures are recorded among those who live away from the University and pass back and forth daily on the trains. Roble Hall and the sororities seem about equal in their reaction on scholarship, and the least favorable conditions would seem to be found in private residences on the campus in the neighboring towns of Palo Alto and Mayfield.

CHARLES HENRY GILBERT,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR

The number of students in attendance in 1910-11 was 1,758. Of these, 1,117 had previously been in attendance, 581 were new students. As compared with 1909-10, there was an increase in old students of 42 and a decrease in new students of 28, making a total increase of 14.

STATISTICS OF REGISTRATION, 1906-1911.

	1906-07	1907-08	1908-09	1909-10	1910-11
Old students	1155	1164	1133	1135	1177
New students.....	513	574	534	609	581
	<u>1668</u>	<u>1738</u>	<u>1667</u>	<u>1744</u>	<u>1758</u>
Percentage of old students returning	64.6	69.7	65.1	68.0	67.0
From California.....	1329	1438	1319	1364	1371
From other States.....	339	300	348	380	387
Percentage outside California.....	20.2	17.2	20.8	21.8	22.0

AVERAGE AGE AT MATRICULATION.

Graduates*	29.7	28.7	28.3	28.2	29.7
Advanced standing	21.5	22.8	22.3	22.5	21.6
Freshmen	19.9	20.4	19.9	20.2	21.5
Specials	25.0	25.1	24.0	23.7	26.5

*From other colleges.

AGE OF FRESHMEN AT MATRICULATION.

Under 17	5	4	4	5	4
17-18	34	41	33	29	35
18-19	89	104	89	104	108
19-20	118	123	111	117	122
Over 20	161	135	143	145	123
	<u>407</u>	<u>407</u>	<u>380</u>	<u>400</u>	<u>392</u>

STATISTICS OF ENTERING CLASS, 1910-11.

	Number Entering	Number Returning 1910-11	Failed in Scholarship
From Colleges—			
Graduates	48	12 (25%)	0 (0%)
With advanced standing.....	101	63 (62%)	6 (6%)
Without advanced standing.....	18	10 (55.5%)	4 (2%)
	167	85 (51%)	10 (6%)
From Normal Schools.....	19	12 (63%)	1 (5%)
From Preparatory Schools—			
On recommendation (wholly or mainly) :			
In full undergraduate stand- ing	349	293 (84%)	27 (7.7%)
In partial standing.....	5	1 (20%)	2 (40%)
Wholly on examination :			
In full standing	2	1 (50%)	.....
In partial standing	0	0	.....
	356	.....	.....
As special students.....	39	18 (46%)	11 (28%)
	581	410 (70.5%)	52 (9%)

COMPARATIVE NUMBERS AT MATRICULATION.

	1909-10	1910-11
From Colleges—		
Graduates	40	48
With advanced standing	120	101
Without advanced standing	15	18
	175	167
From Normal Schools.....	15	19
From Preparatory Schools—		
On recommendation (wholly or mainly) :		
In full undergraduate standing.....	350	349
In partial standing	13	5
Wholly on examination :		
In full standing	5	2
In partial standing	1	0
	384	356
As special students	50	39
Total	609	581

CLASSIFICATION BY MAJOR SUBJECTS.

	1907-08	1908-09	1909-10	1910-11
Greek	19	15	11	4
Latin	54	45	40	42
Germanic Languages	92	81	94	77
Romanic Languages.....	20	36	40	35
English	177	165	149	153
Philosophy	2	6	5	5
Psychology	4	3	3	6
Education	26	37	39	57
History	143	139	152	185
Economics	131	144	157	149
Law	295	37	86	124
Pre-Legal .....	....	211	189	188
Graphic Art	31	33	47	51
Mathematics	34	28	22	22
Applied Mathematics .....	....	.....	....	1
Physics	13	11	13	13
Chemistry	83	79	79	66
Botany	31	31	29	25
Physiology	53	55	70	61
Anatomy .....	....	.....	....	2
Bacteriology .....	....	.....	....	2
Zoology	28	30	24	19
Entomology	11	9	13	16
Geology and Mining.....	123	127	100	102
Civil Engineering	185	169	196	182
Mechanical Engineering	66	63	69	51
Electrical Engineering	117	113	108	109
Medicine .....	....	.....	15*	17†
	1738	1667	1744	1758

*Including 6 also counted under Physiology.

†Including 6 also counted under Physiology.

DISTRIBUTION OF ENTERING CLASS, 1910-11

FROM COLLEGES, ETC.

Amherst College	1	Smith College	2
Antioch College.....	1	Southwestern University	1
Berea (Ky.) College.....	1	Tabor College	1
Beloit College.....	2	Toyokukai College	1
Christian Union College.....	1	University of Arizona.....	1
Columbia University	3	California	15
Cornell University	1	Chattanooga	1
DePauw University	1	Chicago	6
Franklin College	1	Cincinnati	1
Gustavus Adolphus	1	Colorado	3
Harvard University	2	Denver	1
Holy Cross College.....	1	Idaho	3
Iowa State College	4	Illinois	1
Kansas University	3	Indiana	1
Kentucky University	1	Minnesota	7
Kingfisher College	1	Missouri	1
Knox College	1	Nashville	2
Lake Forest College.....	1	Nebraska	1
Lombard College	1	Nevada	1
McPherson College (Kansas)....	1	New Mexico.....	1
Mills College	1	Oklahoma	1
Mississippi Industrial Inst.....	1	Oregon	2
Monmouth College.....	1	Pacific	5
Montana School of Mines.....	1	Rochester	1
New York University.....	1	South Dakota.....	1
Northwestern University	1	So. California.....	21
Oahu College	1	Texas	3
Oberlin College	2	Utah	4
Occidental College	13	Virginia	1
Ohio Wesleyan University.....	1	Washington	3
Oregon Agricultural College.....	4	Wisconsin	3
Pomona College	9	Valparaiso University.....	1
Princeton University	1	Vassar College	1
Rush Medical College	1	Wabash College	1
St. Ignatius College.....	1	Washington and Lee University	1
St. Mary's College.....	1	Wellesley College	1
Santa Clara College.....	5		

FROM NORMAL SCHOOLS.

Alva (Okla.) State Normal.....	3	Lewiston (Idaho) State Normal	1
Arizona State Normal.....	1	San Diego State Normal.....	2
Chico State Normal.....	1	San Francisco State Normal.....	1
Kentucky State Normal.....	1	San Jose State Normal.....	6

FROM PREPARATORY SCHOOLS.

Alameda H. S.....	5	Hamlin School	1
Armour Academy	1	Hanford H. S.....	3
Arroyo Grande H. S. 1.....	1	Harker School	1
Ashland (Ore.) H. S.....	1	Harvard School	5
Ashville School.....	1	Hill Military Academy.....	1
Auburn, H. S.....	1	Hilo (H. T.) H. S.....	1
Azusa H. S.....	1	Hitchcock Military Academy.....	4
Bakersfield H. S.....	2	Hoitt's School	4
Belmont School	2	Hollywood H. S.....	3
Benicia H. S.....	1	Hoquiam (Wash.) H. S.....	1
Berkeley Preparatory.....	1	Huntington Hall	1
Blees Military Academy.....	1	Huron (S. D.) H. S.....	2
Boise (Idaho) H. S.....	2	Kern Co. H. S.....	2
Boone's University School.....	1	La Junta H. S.....	1
Branham and Hughes School.....	1	Lassen County H. S.....	1
Butte (Mont.) H. S.....	1	Long Beach H. S.....	4
California School Mech. Arts.....	4	Los Angeles H. S.....	20
Campbell H. S.....	1	Los Gatos H. S.....	2
Carthage (Mo.) H. S.....	2	Lowell H. S. (S. F.).....	5
Castilleja School	3	McKinley H. S.....	1
Centerville H. S.....	1	Madera Union H. S.....	1
Charleston (Mo.) H. S.....	1	Manzanita Hall	4
Chico H. S	3	Marshall (Ia.) H. S.....	1
Cogswell Polytechnic	1	Mercersburg Academy	1
Colton H. S.....	3	Millersburg Military Academy..	1
Columbia College Prep.....	1	Mission H. S. (S. F.).....	1
Concord H. S.....	1	Modesto H. S.....	1
Covina H. S.....	2	Monrovia H. S.....	3
Cumnock School of Oratory.....	1	Monterey H. S.....	1
Curtis H. S. (Chicago).....	1	Mt. Tamalpais Mil. Acad.....	1
Denver East Side H. S.....	1	Mountain View H. S.....	4
Dominican College.....	1	Muskegon (Mich.) H. S.....	1
El Paso H. S.....	1	Nampa (Idaho) H. S.....	1
Ellensburg H. S.....	2	National Prep. School (San Sal-	
Escondido H. S.....	1	vador)	1
Eureka H. S.....	4	Oahu College Prep.....	4
Ferndale H. S.....	1	Oakland H. S.....	2
Fresno H. S.....	1	Oakdale H. S.....	3
Galena (Kans.) H. S.....	1	Orange H. S.....	2
Gilroy H. S.....	2	Osage (Ia.) H. S.....	1
Girls' Collegiate School.....	1	Pacific Grove H. S.....	3
Girls' High School (S. F.).....	1	Palo Alto H. S.....	28
Glendale H. S.....	1	Pasadena H. S.....	7
Grand Junction (Colo.) H. S....	1	Phillips Exeter Academy.....	1
Gridley H. S.....	1	Phoenix (Ariz.) H. S.....	1

Pillsbury Academy	2	Santa Clara H. S.....	2
Polytechnic H. S. (Los. A.).....	16	Santa Cruz H. S.....	1
Polytechnic H. S. (S. F.).....	1	Santa Maria H. S.....	3
Pomona H. S.....	3	Santa Monica H. S.....	1
Porterville H. S.....	1	Santa Paula H. S.....	3
Portland Academy.....	1	Santa Rosa H. S.....	3
Portland H. S.....	4	Saybrook H. S.....	1
Prescott H. S.....	1	Seattle H. S.....	3
Raton (N. M.) H. S.....	1	Selma H. S.....	2
Redding H. S.....	3	Sierra School	1
Redlands H. S.....	6	Spokane H. S. (Wash.).....	5
Redwood H. S.....	1	Stockton H. S.....	1
Riverside H. S.....	5	Tacoma (Wash.) H. S.....	1
Rock Island (Ill.) H. S.....	1	Throop Polytechnic Inst.....	3
Roswell (N. M.) H. S.....	2	Trinity School (S. F.).....	1
Royalton (Mont.) H. S.....	1	Ukiah H. S.....	1
St. Luke's School	1	University of Arizona Prep.....	1
St. Matthew's School.....	3	Univ. of the Pacific Acad.....	1
St. Paul Mech. Art School.....	1	Vacaville H. S.....	1
Salinas H. S.....	1	Ventura H. S.....	5
Salt Lake H. S.....	6	Waitsburg H. S.....	1
San Antonio H. S. (Tex.).....	1	Washburn School.....	4
San Bernardino H. S.....	6	Wash. (D. C.) Central H. S.....	1
San Diego H. S.....	7	Watsonville H. S.....	1
San Jose H. S.....	34	Westtown Boarding School.....	1
San Mateo H. S.....	3	Whittier H. S.....	1
San Rafael H. S.....	2	Winterset (Ia.) H. S.....	2
Santa Ana H. S.....	1	Woodland H. S.....	2
Santa Barbara H. S.....	5		

REGISTRATION OF STUDIES.

Fifteen units constitute a normal semester's work. The following was the actual registration during 1910-11:

		Number of Students	
		First Semester	Second Semester
For 1 unit	.....	0	0
2	.....	0	0
3	.....	0	1
4	.....	0	1
5	.....	0	0
6	.....	0	1
7	.....	1	0
8	.....	3	1
9	.....	1	7
10	.....	10	14
11	.....	28	14
12	.....	26	44
13	.....	168	153
14	.....	249	214
15	.....	463	436
16	.....	274	216
17	.....	139	167
18	.....	106	104
19	.....	2	5

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1910-11.

	First Semester	Second Semester
Total number of petitions acted upon.....	786	577
To change registration by dropping subjects, or taking up new subjects, or both.....	585	315
To change major subject.....	37	27
To register for fewer than thirteen units.....	*78	†93
To register for more than eighteen units.....	8	11
For leave of absence.....	65	66
Miscellaneous	54	91

*Of these 78 petitioning for fewer than thirteen units, 41 are included in change of registration.

†Of these 93 petitioning for fewer than thirteen units, 26 are included in change of registration.

STATISTICS OF GRADUATION.

The total number of degrees conferred in 1910-11 was 338, distributed as follows :

	Ph. D.	J. D.	A M.	Engr.	LL. B.	A. B.
Greek	1	....	....	2
Latin	8	....	....	8
Germanic Languages	3	....	....	15
Romanic Languages	1	....	....	8
English	5	....	....	38
Philosophy	3
Psychology	1
Education	6	....	....	10
History	4	....	....	23
Economics	2	....	....	16
Law	14	....	....	....	29
Graphic Art	7
Mathematics	4
Physics	3	....	1	....	....	2
Chemistry	1	....	3	1	....	13
Botany	1	....	....	3
Physiclogy	1	....	....	10
Zoology	1	....	....	4
Entomology	2	....	....	4
Geology and Mining.....	3	....	16
Civil Engineering	1	....	39
Mechanical Engineering.....	1	....	8
Electrical Engineering	12
	4	14	39	6	....	275

In the case of the 275 students who received the degree of Bachelor of Arts the period of residence was as follows :

2 semesters	15
3 semesters	7
4 semesters	18
5 semesters	7
6 semesters	19
7 semesters	26
8 semesters	125
9 semesters	33
10 semesters	19
11 semesters	5
12 semesters	1
	275

The 92 students who took their A. B. in less than four years were enabled to do this as follows ("extra courses" meaning courses in excess of the normal 15 units per semester) :

Through advanced credit from other institutions	56
Through advanced credit supplemented by extra courses.....	9
Through advanced credit supplemented by summer work.....	7
Through advanced credit supplemented by extra entrance.....	2
Through summer work and extra courses	9
Through credit for extra entrance units	2
Through credit for extra entrance units and extra courses.....	7
	<hr/>
	92

FACULTY ACTION.

At the request of the Board of Trustees the question of changing the date of beginning the University year to correspond more closely to that of the University of California was brought to the attention of the Executive Committee. After lengthy discussion it was felt that, except for the greater convenience in the case of women failing to secure admission to the University, there were no reasons for preferring an earlier date to the calendar already in force. In view of the assurances of the Committee on Admission that the embarrassing circumstances of 1910 were not likely to be repeated, it was decided to recommend no change in the calendar in this respect.

January 4, 1911, President Jordan addressed the chairman of the Committee on Athletics as follows :

January 4, 1911.

Dr. Frank Angell,
Chairman Committee on Athletics,
Stanford University, Cal.

DEAR SIR :

With a view to carrying out certain reforms in athletics, on the desirability of which your committee and I are agreed, permit me to suggest that your committee, which is an administrative one, as soon as may be should make the following adjustments :

1. To provide that no student shall take part in intercollegiate games in his first year in the University. I recommend that this arrangement be perfected just as soon as our arrangements with the University of California will permit, and in any event not later than July 1, 1912.

2. To provide that no paid coaches be employed by the student body after the expiration of the terms of those now so employed, and in any event none later than January 1, 1912.

3. To provide for such modification as may be desirable as to the rules concerning the period of eligibility to participate in intercollegiate games.

4. To be prepared at the next meeting of the Academic Council to discuss the plans and purposes of the Athletic Committee, especially in regard to the matters above named.

Very truly yours,

(Signed) DAVID STARR JORDAN.

At the meeting of the Academic Council, held January 13, the following resolution was adopted:

Resolved:

That the Academic Council approves and adopts the instructions of the President to the Chairman of the Athletic Committee as the fixed policy of the University;

That, if possible, with due courtesy to the University of California, and in view of commitments already made, participation of first year students in intercollegiate athletics cease at the end of the present academic year;

That the Chairman of the Committee on Athletics be requested to report to the Academic Council at its regular May meeting the results of his efforts in carrying out this policy.

In 1891, at the opening of the University, four grade marks were authorized—namely, excellent, passed, conditioned, failed. After the first semester, the grade excellent was abolished. Provision was made, however, that on the regular semester reports general terms such as good, fair, excellent, poor, etc., might be used by way of comment on the passing mark, but that these should not be made a part of the student's office record. In 1904 it was provided that the letters A, B, C and D, A being the highest and D the lowest passing mark, might be used and entered on the large record card, all passing grades still being reported to the student simply as passed. At the meeting of the Academic Council, held January 13, 1911, the following recommendation, already approved by the Executive Committee, was adopted:

"That the provisions that no higher mark than passed be reported to any student and that the grades A, B, C and D be entered on the student's report card as plus, be stricken out and that the Registrar be authorized to enter grade marks on the student study cards."

By resolution of the Academic Council, adopted May 20th, a special committee was provided to which was referred the entire matter of University policy with instructions to formulate and to submit to the Academic Council recommendations for positive University action looking toward the development of graduate and professional work. This committee was composed of the President and ten members of the Academic Council elected by ballot at the meeting held September 9, 1910, namely, Professors Adams, Alden, Flügel, Franklin, Hoskins, Kellogg, G. H. Marx, Matzke, Peirce and Woodward, Professor Meyer being afterward elected to the vacancy caused by the death of Professor Matzke. This committee submitted a report to the Council under date of April 11th, its principal recommendations being as follows:

(1) That a graduate school be organized to include and foster the work leading to the degrees of Master of Arts and Doctor of Philosophy and such work in the professional departments as is of corresponding character.

(2) That the Board of Trustees be requested, pursuant to their resolution of May 27, 1910, to establish ten graduate fellowships to be known as the University Fellowships.

(3) That the Board of Trustees be requested to sanction the establishment of a graduate summer school.

(4) That membership in the University after the first two undergraduate years be limited to those students who have evinced seriousness of purpose and fitness for scholarly or professional work.

(5) That the Executive Committee be directed to formulate and report plans for the giving of a junior certificate to students who shall have completed two years' work in the University.

(6) That the feasibility of conferring a degree upon students who have successfully completed two years of University work be considered, if possible, by a committee representing the University of California and Stanford University.

The first part of this report, recommending the organization of a graduate school, was discussed in the Academic Council April 11 and April 14, 1911. In the end the plan was rejected and a substitute proposition enlarging the membership of the Committee on Graduate Study to eleven, elections to be by the Academic Council without nomination and by sealed ballot, was adopted. The remainder of the report was laid on the table.

On recommendation of the Committee on Public Health the regulations governing vaccination were revised as follows:

(1) Each student will be required to present, for purposes of record, a dated statement, signed by a physician in good standing, certifying to his or her last successful vaccination. Such certificates will be returned, upon request, after incorporation into the University records. Inspection of the scar by the University authorities may be required. (2) A history of previous vaccinations is requested, but need not be in the form of a signed certificate. (3) Re-vaccination will be required of all those not successfully vaccinated within seven years. (4) Unsuccessful vaccination must be followed by a second trial within two weeks. (5) Should the disease at any time appear at or in the vicinity of the University, vaccination must be performed immediately on all those directly exposed who have not been successfully vaccinated within one year. Should the disease become prevalent, vaccination of all members of the University community not successfully vaccinated within one year must be performed.

ORRIN LESLIE ELLIOTT,
Registrar.

APPENDIX IV

THE REPORT OF THE LIBRARIAN

THE GENERAL LIBRARY.

The growth of the library during the year is indicated by the following statement :

Volumes in Library, August 1, 1910.....	143,881
Added by purchase	12,748
Added by gifts and exchange.....	1,424
Added by binding	4,816
	<hr/>
Total volumes added.....	18,988
Less volumes withdrawn.....	437
	<hr/>
Net increase	18,551

Volumes in Library, July 31, 1910.....162,432

When we add to the above figure of 162,432 the 35,000 volumes of the Lane Medical Library, it will be seen that the library had at the close of the year a total of 197,432 volumes, and this number is being increased by purchases averaging about fifteen hundred volumes a month.

The Jarboe collection mentioned last year as having been purchased was not actually received until August, and it is therefore included in the figures stated above. It comprised 1,246 volumes. The only other large group of books acquired was the larger portion of the botanical library of the late Professor William Russell Dudley, numbering 448 volumes. To the Law Library 732 volumes were added, of which 622 were by purchase, 25 by gift and 85 by binding serials. The accessions to this department are largely in continuation of sets already on the shelves. Noteworthy among the new titles added are the American Bankruptcy Reports, Morrison's Mining Reports, and Federal Cases Annotated.

Chief among the donors of the year are Thomas Welton Stanford, Dr. David Starr Jordan, Timothy Hopkins, Dr. John M. Stillman, Col. George L. Anderson, the Canadian Society of Civil Engineers and the Pennsylvania State Library.

On account of the special appropriation for sets, 3,404 volumes have been ordered at a cost of \$7,970.71. Of these, 2,418 volumes have been supplied, at a cost of \$5,271.21, while orders for 986 volumes yet remain outstanding.

The growth of the library by years is interestingly shown by the following table :

GROWTH OF LIBRARY BY YEARS.

At the time of opening,	1891	3,000
Year ending July 31st,	1892	5,030
" " " "	1893	7,572
" " " "	1894	4,366
" " " "	1895	3,640
" " " "	1896	9,898
" " " "	1897	3,945
" " " "	1898	3,848
" " " "	1899	3,395
" " " "	1900	6,957
" " " "	1901	8,979
" " " "	1902	9,415
" " " "	1903	6,506
" " " "	1904	4,956
" " " "	1905	4,425
" " " "	1906	4,829
" " " "	1907	7,014
" " " "	1908	15,056
" " " "	1909	14,398
" " " "	1910	16,652
" " " "	1911	18,551
		<hr/>
		162,432

To make it a matter of record and at the same time to show in a general way the character of the accessions, the following table of the allotments from the Jewel fund is annexed:

UNIT DISTRIBUTION OF THE APPROPRIATION FOR BOOKS, 1910-1911.

DEPARTMENT	Units	Amount
Greek	5	\$465.75
Latin	5	465.75
Germanic Languages	7	652.05
Romanic Languages	7	652.05
English Literature and Rhetoric	8	745.20
English Philology	3	279.45
Biblical History and Literature.....	½	46.58
Philosophy	4	372.60
Psychology	4	372.60
Education	4	372.60
History	12	1,117.80
Economic and Social Science.....	8	745.20
Graphic Art	2	186.30
Mathematics	4	372.60
Applied Mathematics	1	93.15
Physics	5	465.75
Chemistry	6	558.90
Botany	3	279.45
Systematic Botany	3	279.45
Physiology and Histology	5	465.75
Zoology	4	372.60
Entomology and Bionomics	2	186.30
Geology and Mining	7	652.05
Civil Engineering	4	372.60
Mechanical Engineering	4	372.60
Electrical Engineering	1	93.15
Medicine:		
Anatomy	3	279.45
Pharmacology	3	279.45
Bacteriology	3	279.45
General Literature	20	1,863.00
Bibliography	2½	232.87
Hopkins Railway Library	3	279.45
Special:		
Economics	1	93.15
Bionomics	1	93.15
Archaeology	1	93.15
Law	1	93.15
Transportation charges		375.45
		<u>\$15,000.00</u>

The unusually large number of accessions has somewhat exceeded the capacity of the classification and cataloguing departments. Miss Hays reports 15,912 volumes as the number classified, while according to Miss Sutliff 15,640 volumes have been catalogued. The department was handicapped by the transfer of Miss James to the Lane Medical Library and by the resignation of Miss Bigley. Some reinforcement has been given for the coming year and it is hoped that all arrears may be cleared away. The number of cards added to the catalogue is 44,749, of which 11,156 were obtained from the Library of Congress and 1,420 were supplied by the American Library Association.

In October the subjoined circular letter was sent to the respective departments represented in the unit appropriations:

"DEAR SIR:

"Members of some of the departments have from time to time expressed a wish that they might be supplied with catalogue cards showing the books received at the library at the request of their respective departments. The library will now undertake to supply cards to departments desiring them. They will be sent out monthly and will represent the books listed in the Accessions List of that month. Each department will receive cards only for books purchased at the request of that department.

"Inasmuch as the preparation of these cards involves some time and expense, the library does not wish to send them unless they will be of some real use and will be properly filed and cared for.

"Herewith please find cards for books purchased at the request of your department and included in the October Accessions List. Shall we continue to send such cards to your department?"

This offer met with a most cordial acceptance and the cards have since been regularly supplied to most of the departments.

By force of circumstances the library binding is still done in San Francisco, lots of one hundred or more volumes being shipped there once or twice a month. During the year 3,581 volumes have been bound at a cost of \$3,836.26. About two-thirds of the material bound consists of serials and other continuations received in unbound form, while the remainder consists of books so worn by use that rebinding is necessary.

The work at the loan desk has gone along with very little friction and apparently it has been done efficiently. The number of books issued varies slightly from the record of last year. Mr. Goodwin's report of the circulation is as follows:

CIRCULATION—1910-11.

August	1,250	February	17,875
September	18,800	March	15,893
October	22,312	April	18,257
November	18,856	May	8,814
December	13,204	June	1,182
January	12,559	July	506
			<hr/>
Total			149,508

While the growing resources of the library enable it to more nearly meet the demands made upon it, it is unreasonable to expect that it can ever do so completely. During the past year we have borrowed from the following libraries:

University of California.....	38 vols.
Yale University	16 "
Library of Congress.....	11 "
University of Michigan.....	5 "
California State Library.....	3 "
Harvard College	3 "
Columbia University.....	3 "
New York State Library.....	2 "
University of Chicago.....	1 vol.
	<hr/>
	82 vols.

We have been able in a measure to reciprocate for these courtesies by lending to five libraries an aggregate of 25 volumes.

The personnel of the staff for the year was as follows:

Librarian, George Thomas Clark.

Assistant Librarian, with supervision of stacks and loans, John Edward Goodwin.

Stenographer, Mary Jeannette Woodruff.

Chief of Order Department, Sydney Bancroft Mitchell.

Assistant, Sylvia Della Stinson.

Classifier, Alice Newman Hays.

Assistant, Mira Burnett Bennett.

Chief Cataloguer, Helen Binninger Sutliff.

Cataloguer, Elizabeth Hadden.

Cataloguer, May Franklin.

Cataloguer, Anna Gertrude Hall.

Cataloguer, Della Thompson.

Filing Clerk, Marguerite Brown.*

Bookmarker, Joseph Paul Cottrell.*

Reference Librarian (first semester), Helen Lathrop.

Reference Librarian (second semester), Maida Rossiter.

Assistant Reference Librarian, Blanche Julia Mobley.

Chief of Serial Department, Edith Margaret Coulter.

Assistant, Louise Ophüls.

Loan Desk, Lucia May Brooks, Charles V. Park, Harold Manley Tennant,* Ollis Willard Newman,* Thomas Powderly Martin.*

Bindery Assistant, Hannah Lillian Todd.

General Assistant, Sherman Lawrence Black.*

Librarian in charge of Medical Department, Frances Sophia Courtenay James.

*Student assistant working less than full time.

The staff has lost some very efficient members from various causes. Mr. Mitchell and Miss Coulter resigned to accept positions elsewhere which seemed to offer more inducements. Miss Lathrop resigned to be free to spend considerable time abroad. Miss Mobley resigned on account of marriage.

Frequent changes in the staff are regrettable, for the reason that those leaving take with them an accumulated experience which is a valuable aid to efficient service. We have been fortunate in those appointed to fill the vacancies, however, and can reasonably expect that the service will be no less efficient in the future than it has been in the past.

The annual meeting of the American Library Association was this year held at Pasadena, May 18-25. Stanford University Library was represented by the Librarian and six members of the staff. After the meeting a party of about one hundred of the Eastern delegates journeyed up the coast, visiting Stanford May 31st as the guests of the University.

THE LANE MEDICAL LIBRARY.

The administration of the Lane Medical Library, a trust, was transferred to the Trustees of the University in January, 1910. At their meeting in March a resolution was passed directing that the Librarian of the University take charge of the Lane Library, consulting as to its needs with the Medical Library Committee of the faculty. The Librarian met with that committee on April 9th. The needs of the library were considered and an estimate of expenses for the ensuing year was prepared. For financial reasons it seemed best that the committee retain active supervision of the library until appropriations for the new academic year be-

came available. At the beginning of June, 1910, however, Miss James was transferred from the Catalogue Department at Stanford to the active charge of the Medical Library.

The Lane Library at present occupies two rooms on the second floor of the Cooper College building, with an overflow of books in a room on the third floor and a large collection of duplicates stored in another room on the fifth floor.

Owing to incomplete records, the number of volumes can be only approximately stated, but exclusive of duplicates it is about 35,000. About two-thirds of the collection consists of medical serials, many of which at the time of transfer were unbound. A dictionary catalogue has been commenced, but as yet it represents only a fraction of the entire collection. The books have yet to be classified and numbered. There is a fairly accurate record of the periodical publications showing the condition of each, i. e., the volumes in the library, whether bound or unbound, and the volumes needed to complete the sets. There is much to be done to put the collection into good, usable condition. Through the courtesy of Cooper Medical College, the former assistant librarian, Mr. D. M. Belfrage, has remained in charge of the work at the loan desk, so that Miss James has been free to devote most of her time to the collation and preparation for the bindery of the unbound serials. During the year 2,435 volumes were sent to the bindery. It is estimated that about 600 volumes yet remain to be bound, in addition to a large mass of material which cannot be put in permanent form until lacking numbers have been supplied.

The library is indebted to Dr. G. C. and Dr. S. E. Simmons of Sacramento for the gift of the medical library of their father, the late Dr. G. L. Simmons, a collection of about 1,000 volumes. It contains much material valuable for the history of medicine in California.

Dr. Emmet Rixford of the Cooper College faculty has been devoted to the upbuilding of this library from its inception in 1895. He has very kindly sent me a brief outline of its history and in order to make it a permanent record it is here included:

"It had long been a cherished plan of Dr. L. C. Lane and his wife to leave the remainder of their fortune, after having built Lane Hospital and Cooper Medical College buildings, to Cooper College for the endowment of the Lane Medical Lectures and the founding and endowment of a great medical library for the benefit of the college and of the medical profession, and each made a will leaving all the property to the other, it being arranged that the survivor should carry out those plans. Mrs. Lane's death following closely on that of Dr. Lane, in 1902, left the plans unfulfilled, but Mrs. Lane bequeathed to Cooper Medical College all that is permitted by the law of the State of California for charitable purposes or to a corporation, viz., one-third of her estate "for the erection and

maintenance of a medical library and a special library building therefor, said library to be named 'The Levi Cooper Lane Library of Medicine and Surgery.' "

In 1903, out of moneys received from the estate of Mrs. Lane, the directors of Cooper Medical College bought a lot having an area of about 11,000 square feet on the southeast corner of Webster and Sacramento streets, this being considered a suitable site for the proposed library building.

On August 29, 1906, the Lane Medical Library was formally created by resolution of the directors of Cooper College and the library of the college, comprising about 8,000 volumes, was made the nucleus thereof. Shortly thereafter a collection of some 30,000 volumes arrived, having been purchased from the New York Academy of Medicine, the same being its collection of duplicates, chiefly the library of the New York Hospital.

Exclusive of duplicates the library numbers approximately 35,000 volumes of which about 25,000 are bound, making this the sixth or seventh largest collection of medical books in the United States. The library is particularly rich in files of American, English, German and French periodicals, most of which are complete from their beginning.

The endowment for the library being largely in unproductive real estate the available funds for library expense and the purchase of books amounted to but \$1,200 a year after taxes were paid. Cooper College contributed the room and the salary of the assistant librarian, so that all of the \$1,200 might be spent for books and subscriptions to periodicals.

About 136 periodicals are received regularly, but from 1906 to 1910 no funds were available for binding, so that when the library was transferred to Stanford University there had accumulated a large amount of valuable material which was but poorly accessible because unbound.

The library of Cooper Medical College, which, as previously stated, became the nucleus of the Lane Medical Library, took tangible shape in 1895, having then but 300 volumes, mostly donations by members of the faculty. By donation, exchange and purchase, as the college could appropriate funds therefor, the collection grew until, in 1902, it contained about 7,000 volumes, when it was further increased by the addition of Dr. Lane's personal library to 8,000 volumes and some 10,000 pamphlets.

In January, 1910, Cooper Medical College deeded its various properties to the Leland Stanford Junior University, the Lane Medical Library trust with its properties and collection of books was also transferred to the trustees of the university and in July, 1910, the library was put in charge of the librarian of the university.

GEORGE THOMAS CLARK,
Librarian.

APPENDIX V

STUDENT ADVISER.

The work of the Student Adviser has been of the same general personal nature as outlined during the first year of the existence of this office.

Three hours daily have been given to personal consultation with students. First year men who have fallen below the scholarship standards have been interviewed with the object of discovering the reasons for their failures. An effort has been made to assist such men in obtaining proper ideals of university work.

Numerous inquiries from parents concerning the general progress and deportment of their sons have been answered. In some instances regular reports have been sent to parents and guardians.

Much time has been given to association with students in the various lines of student activities, and to the work of the University Conference.

The University Conference, an organization of upper class men, seeking to co-operate with the faculty student affairs committee in matters of discipline and in other matters of more general interest, has served a useful function during the past year.

As a medium for the exchange of faculty and student opinion it has done much to bring about a hearty co-operation in the solution of problems which in former years have sometimes occasioned serious difficulties.

An extended report upon athletic conditions in general, and more especially of facts bearing upon the abolition of freshman intercollegiate athletics, was prepared and presented to the president and his athletic committee. The question was fairly and intelligently discussed and the result was the abolition of freshman intercollegiate athletics without serious objections from the student body.

A proposed limitation upon social activities was discussed with the Student Affairs Committee and no action was taken by that committee. In some of these instances faculty opinions prevailed and suggestions by faculty committees were carried out. In others, student opinions prevailed and proposed regulations were altered or dropped. In all cases a perfect understanding was reached and much possible friction avoided.

In the field of student control, the conference has directed its efforts more to the presentation of cases calling for discipline than to dealing directly with such cases when they have arisen.

Objectionable features in public initiations have been eliminated. A committee from the conference met with the sophomore class and severely censured certain indiscreet acts by individual members of the class.

The Junior Plug Ugly was conducted under the control of the conference and the poster and manuscript of the play were handed to the student adviser for censorship. The rush was held under rules drawn up by the conference and all objectionable features of former years were completely eliminated.

Through a meeting with representatives of the various fraternities and Encina Hall public sentiment against certain objectionable conduct by the men on the day of Pan Hellenic was crystallized and the evil effectively abolished.

The Conference co-operated with the faculty Student Affairs Committee in carrying into effect the regulations prohibiting hazing in any form. It also met with this committee for the discussion of several individual cases of discipline.

In conjunction with the Advisory Board of the Alumni Association, it is putting into execution a plan for eating clubs upon the campus and by properly directing student efforts, it aided the Guild Board in securing a site for a detention hospital.

Joint meetings have been held with the Young Women's Conference for the consideration of certain phases of social activities and other matters of common interest to the men and women of the University.

The result of this work has been the development of a sense of responsibility among the upperclassmen for the maintenance of good order and high ideals in student life.

On the whole, it is safe to say that the conditions of student life have never been better than at the present time. The moral standard is exceptionally high and statistics show a marked improvement in scholarship.

ALMON E. ROTH,
Student Adviser.

APPENDIX VI

THE MEMORIAL CHURCH.

Services of public worship have been maintained during the past academic year as follows :

Daily, at 8 a. m., in the vestry of the Memorial Church, and on Sunday in the old chapel. The total attendance at the daily service was 1,612, an average of 12. The attendance on Sundays aggregated 5,543, an average of nearly 200. This does not include Baccalaureate Sunday. The Chaplain officiated at all services, making addresses often at the daily service, and preaching on alternate Sundays. In addition, he has addressed various gatherings of students on subjects of manners or morals.

Acting under the authority of the Board of Trustees, the Chaplain invited the following-named clergymen of different denominations to preach at the chapel service on alternate Sundays :

Rev. A. W. Palmer, Oakland, Congregationalist.
Rev. G. C. Eldridge, Berkeley, Presbyterian.
Rev. N. K. Guthrie, San Francisco, Presbyterian.
Rev. Matt Hughes, Pasadena, Methodist.
Bishop Hughes, San Francisco, Methodist.
Bishop Nichols, San Francisco, Episcopalian.
Rev. E. V. Shayler, Seattle, Episcopalian.
Bishop Bell, Berkeley, United Brethren.
Rev. E. C. Hodgkin, Los Angeles, Unitarian.
Rabbi Kaplan, San Francisco, Hebrew.
Dr. Brougher, Los Angeles, Baptist.
President Baer, Los Angeles, Presbyterian.
Rev. W. B. Hinson, Portland, Baptist.
Rev. Dana W. Bartlett, Los Angeles, Congregationalist.
Rev. Robert Freeman, Pasadena, Presbyterian.

In addition to preaching and making addresses, the Chaplain has given a course of lectures in the University on Biblical history and literature.

The Chaplain has visited and addressed the fraternities on the Campus ; entertained students at his home ; called on all students committed to his care or in need or distress ; visited halls and lodgings ; visited every sick

student of whom he had knowledge; attended all students in hospital, and kept office hours daily from 9 to 12 for consultation with students and others.

During the year parcels of books have been sent to the Seamen's Institute; flowers, etc., to the Old Ladies' Home, the City and County Hospital and the Children's Hospital; nearly \$400 was collected and contributed to the Red Cross for the Chinese Famine Fund. In this practical manner and by meetings of groups of students, the idea of helpfulness to others has been encouraged.

Under Mr. Buehrer the choir has done good and efficient work.

D. CHARLES GARDNER,
Chaplain.

APPENDIX VII

THE LELAND STANFORD JUNIOR MUSEUM.

Most of the work of the year was confined to the care of the building and the collections, the working force being reduced to the least possible number in the interest of economy.

A number of small donations were made, mostly of Stanford historical matter.

The most important event of the year was the opening of the South Art Gallery, containing the greater part of the Thomas Welton Stanford Collection of paintings. This collection has received unstinted praise from both the visiting public and art critics, and very laudatory press notices of the opening were given. This is not to be wondered at when it is taken into consideration that the artists represented in the collection are Minderhout Hobbema, James Giles, R. S. A., John Frederick Herring, Lineur, Van den Houten, Francis Snyders, W. J. Laidlay, David Bates, Julian M. Price, J. W. Ready, William Melby, Elijah Walton, F. G. S., W. Henry, W. Koek-Koek, E. Wake Cook, T. R. Miles, John Glover, Herr Schnars-Alquist, Louis Buvelot, William Hart, William Shiels, R. S. A., Patrick Nasmyth, Sam Bird, Emil Bayard, G. Koken, John Weenix, Gerard Lairesse, Salvator Rosa, Melchoir Hondecooter, Marie Angelic Kaufman, George Earl, Heinrich Rasch, Ten Kate, Kuardabassi, and E. G. Lewis.

In addition to those already hung are the twenty-four paintings that were damaged in 1906. The Board of Trustees has engaged the services of Mr. Henry Raschen, the noted expert in the restoration of paintings, to repair and restore these. He has also restored the painting presented by Trustee Horace Davis, which was badly damaged at the same time. A number of other canvases belonging to the Museum were likewise gone over, restored and varnished. The work was thorough and satisfactory.

These paintings will be added to the other collections as soon as they are sufficiently dried.

On July 17th the Museum entertained the visiting members of the N. E. A., who spent several hours on the grounds and in the building.

The attendance during the year has been very good. The fact that the building is so far from the car line has a tendency to deter visitors from coming over.

HARRY C. PETERSON,
Curator.

APPENDIX VIII

GIFTS.

The following gifts to the University for the year deserve special mention:

Department of Medicine:

From Dr. Adolph Barkan.....	\$10,000
From Mr. Charles G. Lathrop.....	5,000
From Mr. Antoine Borel.....	2,500
From J. H. Meyer.....	2,500
From Edward Coleman.....	2,500
From Cooper Medical College.....	20,000
From Dr. Emmet Rixford.....	20
Total	<hr/> \$42,520

From Dr. G. L. Simmons, 1,000 books and 300 pamphlets.

From Dr. W. R. Cluness, 200 volumes.

From Dr. C. M. Richter, 10 volumes.

From Dr. W. Ophüls, 45 books and 10 pamphlets.

From Dr. R. L. Wilbur, 102 books and 1,010 pamphlets.

From the American Association of Obstetricians and Gynecologists, Philadelphia, 10 volumes.

From the American Pediatric Society, Washington, D. C., 4 volumes,

From various societies, 100 volumes of reports.

Laboratory of Pharmacology:

From the Bureau of Plant Industry, Washington, D. C., a collection of crude drugs and certain photographs of medicinal plants.

From the Bureau of Chemistry, Department of Agriculture, Washington, D. C., a loan collection of crude drugs.

From Sharp & Dohme, Baltimore, Md., a collection of drug preparations.

From Parke, Davis & Co., Detroit, Mich., drug specimens.

From Armour & Company, Chicago, specimens of ductless glands.

Department of Education:

From the American Book Company, a collection of text-books numbering approximately 100 volumes.

From the State Superintendent of Public Instruction, a set of the State Series text-books.

From D. C. Heath, certain charts and readers.

From Ginn & Co., Doub & Co., Bobbs-Merrill Co., and others, various text-books.

The University:

From the Alumni Association, a portrait of President Jordan, painted by Mrs. Emma Curtis Richardson of San Francisco.

Department of English:

From Dr. F. H. Bartlett, New York City, a portrait of Mrs. Eleanor Brooks (Pearson) Bartlett, instructor in English, 1898-1902, who died in 1909.

Department of History:

From Mrs. Lucy A. Brown, Chicago, Ill., \$25, for the purchase of books in connection with the lecture course on international conciliation.

Department of Geology:

From Mrs. S. F. Lisk, Frankfort, Ind., a collection of minerals, shells and polished wood specimens.

Department of Botany:

From William Russel Dudley, since deceased, his private collections of plant specimens, numbering 50,000.

Department of Mechanical Engineering:

From the Hess-Bright Company, a set of line shaft ball bearings and fixtures for the pattern shop main drive, having a value of \$328.

Department of Electrical Engineering:

From the National Carbon Company, Cleveland, Ohio, one cabinet containing specimens of manufactured carbon products.

The University Library:

From Mr. Thomas Welton Stanford, 185 books.

From Dr. David Starr Jordan, 57 books and 150 pamphlets.

From Mr. Timothy Hopkins, 20 books and 59 pamphlets.

From Mr. Horace Davis, 6 books and 48 pamphlets.

From Dr. John Maxson Stillman, 23 books.

From the Library of the University of Heidelberg, 386 pamphlets.

From the Library of the University of Berlin, 277 pamphlets.

From the Library of the University of Erlangen, 260 pamphlets.

From the Library of the University of Jena, 196 pamphlets.

From the Library of the University of Halle, 163 pamphlets.

From the Library of the University of Königsberg, 69 pamphlets.

From the Library of the University of St. Petersburg, 45 pamphlets.

From the Library of the University of Tübingen, 37 pamphlets.

From the Library of the University of Upsala, 35 pamphlets.

From Cornell University, 2 books and 94 pamphlets.

From the University of Chicago, 4 books and 64 pamphlets.

From the California Department of State, 14 books and 39 pamphlets.

From the Wisconsin State Department, 3 books and 77 pamphlets.

From various institutions, societies and individuals, additional volumes to the number of 588 and pamphlets to the number of 3,052.

From the publishers and by gift from individuals, 145 serial publications.



LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1912

TRUSTEES' SERIES

No. 1

NINTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY
FOR THE YEAR ENDING JULY 31, 1912

PRINTED BY THE UNIVERSITY
FOR THE YEAR ENDING JULY 31, 1912



LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1912

TRUSTEES' SERIES

No. 21

NINTH ANNUAL

REPORT OF THE PRESIDENT

OF THE

UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1912

STANFORD UNIVERSITY, CALIFORNIA
PUBLISHED BY THE UNIVERSITY

1912

LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

TRUSTEES' SERIES

No.		Date
1.	The Leland Stanford Junior University. A pamphlet of information.....	(No date)
2.	Address of Jane Lathrop Stanford to the Board of Trustees	February 11, 1897
3.	Address of Jane Lathrop Stanford to the Board of Trustees	June 1, 1897
4.	Address of Jane Lathrop Stanford to the Board of Trustees	May 31, 1899
5.	Address of Jane Lathrop Stanford to the Board of Trustees	October 3, 1902
6.	Address on "The Right of Free Speech" by Jane Lathrop Stanford to the Board of Trustees...	April 25, 1903
7.	Petition filed in proceedings to establish and construe University Trusts.....	June 16, 1903
8.	Decree in proceeding to establish and construe University Trusts.....	July 3, 1903
9.	Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
10.	Organization of the Faculty of the University.....	March 31, 1904
11.	Report of the Organization Committee of the Trustees upon the Organization of the University Faculty.....	March 31, 1904
12.	First Annual Report of the President.....	December 31, 1905
13.	Second Annual Report of the President.....	April 30, 1906
14.	Third Annual Report of the President.....	December 31, 1906
15.	Fourth Annual Report of the President.....	December 31, 1907
16.	Trustees' Manual	November 1, 1908
17.	Fifth Annual Report of the President.....	December 31, 1908
18.	Sixth Annual Report of the President.....	December 31, 1909
19.	Seventh Annual Report of the President.....	December 31, 1910
20.	Eighth Annual Report of the President.....	December 31, 1911
21.	Ninth Annual Report of the President.....	December 31, 1912

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REPORT OF THE PRESIDENT

STANFORD UNIVERSITY, CAL., December 30, 1912.

*To the Honorable Board of Trustees,
Leland Stanford Junior University.*

GENTLEMEN:

Permit me to present the following report of the work of the University for the academic year 1911-12.

The year has been without overshadowing incident. This is the normal condition of the life of the University. The internal affairs of the institution, those relating to instruction and those relating to the character and ideals of the student body, have never before been in so satisfactory a condition. One phase of this is shown in the fact that there have been fewer failures in work (forty-five in all) than in any previous year. In the earlier years, 1909-10, and 1910-11, the number dropped from the rolls for failure in university work was sixty-eight and fifty-nine respectively. In the years from 1902-1909 the number of similar failures was about twice as great. This change is related to the rising condition in morals and behavior, and to the fact that idle and dissipated young men being not welcome at Stanford prefer to go elsewhere. In the quick response to more severe demands in scholarship and to higher ideals of personal character, I find great encouragement for the future of higher education in America.

It is true that in American colleges many students use the institution as a means of social enjoyment and for other ends unrelated to education. The remedy for this is not found in prescribed courses of study, which are fitted to the needs of no one, and which make matters worse. It is found in the insistence by the

University faculty that the college is a place for intellectual and moral training and that those who do not want such training should seek their pleasure elsewhere. There is not much virtue in the college as a place for general culture to the student who has no intellectual ends to serve. Broadly speaking, culture worthy of the name comes from no particular study and from no grouping of subjects. It comes mainly either from good work performed for the love of it, or from good work undertaken with a distinctly vocational purpose.

The various forms of educational waste—dissipation, idleness, snobbishness, abuse of athletic sports—all these mean indifference or neglect on the part of the faculty. So long as collegiate training of young men and university research are entrusted to the same group of teachers, these teachers cannot escape responsibility for the moral and intellectual ideals of those under their charge.

Perhaps the most important forward move of the year at Stanford University is the acceptance of student control in the maintenance of moral ideals. The student body has undertaken to enforce all University regulations as to student conduct, and this on the basis of the highest ethical standards. Those whose presence works injury to their fellows or to the good name of the University are required to withdraw. For the achievement of this desirable condition especial credit is due to the patient work of Professor Arthur Bridgman Clark, chairman of the Committee on Student Affairs.

In the student annual, "The Quad" for 1912, the writer used the following words concerning this matter:

Occasionally in reminiscent mood, we old-timers refer to the days from 1891 to 1895 as the Golden Age of the University. But when we settle down to historic accuracy, we know that the Golden Age of Stanford is now. The Golden Age of any university is that time when every man and every woman who enters it is the better, morally as well as intellectually and physically, for coming. We believe that this is true today at Stanford. We know that it was not true in the fine warm-hearted youthful days when the University had no rules and was controlled by moral suasion. There may be universities in which it is still not true. It may

be that they will meet their problems in some other way; but we shall solve ours in our own fashion.

"Student Control," as we understand it at Stanford, seems to us a crystallization of this Golden Age. It does not mean that moral or intellectual fashions are set by immature youth. The faculty is here to set standards of living as well as of thinking. It does not mean merely that the students will vote on matters which concern their various activities. It does not stop at a pledge from the students that they will cut out their own delinquents and delinquencies. Its essence is the realization that the highest ideals of student life their teachers can set before them have been understood and loyally accepted. It is a guarantee that in this Golden Age, and in all that has made it golden, the student body is an active and integral part.

The students of today fix the traditions of tomorrow. The students of today are the alumni of tomorrow. On their shoulders rests the welfare of the University. It is for them to say how long the Golden Age shall endure.

In the matter of shaping student methods and traditions, the work of the student adviser, Mr. Almon Eugene Roth, for the past three years has been a factor of the greatest importance. The experiment of assigning to a beloved and respected graduate student the work of setting standards for entering classes has been an unqualified success. Mr. Roth leaves the University to engage in the practice of law. The same experiment will be repeated by the appointment as his successor of the president of the student body, Mr. Karl Ludwig Schaupp. His well-tested ability to control and his loyalty to ideals promise for him equally excellent results.

A leading feature of the year's work has been the erection in San Francisco of a library building to house the Lane Medical Library, the building being put up with the money left for that purpose by the late Mrs. Levi Cooper Lane.

The Student Adviser During the year the rebuilding of the Memorial Church has gone on steadily, the walls being restored in the most solid manner known to builders. Thus far, no changes from the original form and ornamentation have been made. Much of the mosaic work and all of the stained glass windows have been unharmed.

A new power house has been built to the southeastward of the

Quadrangle and the buildings formerly used for boilers and machinery for heating and lighting have been adapted to the uses of the Department of Civil Engineering.

During the year Mr. Thomas Welton Stanford has made permanent provision for the creation of a fellowship known as the **Fellowship in Psychic Research** Thomas Welton Stanford Fellowship for Research in Psychic Phenomena. Dr. John Edgar Coover, a graduate of Stanford, has been selected for this work for the year 1912-1913.

In the Faculty of the University a few changes have taken place during the year:

In Greek, Assistant Professor Ernest Whitney Martin has been made Associate Professor. In Latin, a similar promotion has been granted to Benjamin Oliver Foster.

Faculty Changes and Absences In Romanic Languages, Robert Edouard Pellissier returns from study in Harvard University to an instructorship in French.

In German, Assistant Professor Macy Millmore Skinner has been made Associate Professor and Instructor Hermann Johann Hilmer has been made Assistant Professor. In the sabbatical absence of Dr. Skinner his work has been taken by Acting Assistant Professor George W. Hauschild.

In English, Associate Professor Raymond Macdonald Alden has resigned to accept the chair of English in the University of Illinois. Miss Edith R. Mirrieles (Stanford 1907) and Mr. Van Wyck Brooks (Harvard 1907) have been made instructors, and Everett Wallace Smith (Stanford 1899) has been promoted from an instructorship to be Assistant Professor of English.

In History, Dr. Edward Benjamin Krehbiel has been made Professor of Modern European History. Assistant Professor Henry Lewin Cannon has been made Associate Professor of History, and Mr. Edgar Eugene Robinson, a graduate of Wisconsin University, late Assistant Professor of History at Carleton College, has been made Assistant Professor of American History, succeeding Professor Herbert E. Bolton, who takes the chair of Spanish-American History in the University of California. Instructor Percy Alvin Martin has been made Assistant Professor of History.

In Economics, Professor Alvin Saunders Johnson was called from Chicago University as professor and department executive to succeed Professor Allyn Abbott Young, who has accepted the chair of Economics in Washington University, St. Louis. At the end of a most successful year Dr. Johnson has accepted a corresponding chair at Cornell University and the chair has been filled by the appointment of Professor Murray Shipley Wildman. Dr. Wildman holds the doctor's degree from the University of Chicago, and has held the chair of Economics and Commerce in Northwestern University since 1909. In the sabbatical absence of Dr. Whitaker for the second semester, Mr. Donald Frederic Grass and M. Lippitt Larkin, graduate students from the University of Chicago, have been made instructors, their work lying in the direction of the vocational applications of Economics. At the end of the year, 1911-12, Associate Professor Harry Alonzo Millis accepted the chair of Economics in the University of Kansas. Mr. Stephen Ivan Miller, teacher of Economics in the Polytechnic High School of Los Angeles, was appointed instructor. Mr. Miller is a graduate of Stanford in the year 1898, and has carried on advanced studies at the University of Wisconsin and at Heidelberg. Instructor Ira B. Cross has been made Assistant Professor of Economics.

In the Department of Law, Professor Charles Henry Huberich was absent for the year on sabbatical leave, devoting himself to his publications and to the practice of American law in Berlin, withdrawing from the University at the end of the year. His place was taken for the year by Professor Howard Luther Smith of the University of Wisconsin. Professor Wesley Newcomb Hohfeld was also absent for the year on sabbatical leave. Associate Professor Joseph Walter Bingham was made Professor. Marion Rice Kirkwood of the law faculty of the University of Oklahoma was appointed Assistant Professor. Mr. Kirkwood is a graduate of Stanford (J. D. 1911).

In Education, Assistant Professor Lewis Madison Terman has been made Associate Professor and Instructor Jesse Brundage Sears Assistant Professor.

In Psychology, Professor Lillien Jane Martin has been absent on sabbatical leave for the year, engaged on work in Germany.

In Philosophy, Mr. Har Dayal from Oxford has been appointed

lecturer on Indian Philosophy, a temporary appointment ending September, 1912.

In Graphic Arts, Mr. Henry Varnum Poor (Stanford 1910) has acted as instructor in the sabbatical absence of Assistant Professor Robert Barthlow Harshe.

In Physiology, Mr. Frank Walter Weymouth (Stanford 1910) has been made instructor.

In Botany, Mr. James I. W. McMurphy (Stanford 1908) was appointed instructor.

In Roble Gymnasium, Miss Maud Cleveland, assistant, was appointed instructor.

In Chemistry, Professor Edward Curtis Franklin has been absent for the year, acting as Chemist of the National Public Health Service at Washington. In his absence Mr. George S. Bohart (Stanford 1911) has been employed as instructor. Miss Alice Ruth Berger (Stanford 1908) has been appointed Acting Instructor in Analytical Chemistry.

Passing of Cooper Medical College The beginning of the fourth year of Medicine is marked by the dissolution of the corporation of the Cooper Medical College, its last class having graduated and all its property being now placed in the hands of the trustees of Stanford University for purposes of medical education.

Death of Dr. Henry Gibbons Jr. In this department I have to note the death of Dr. Henry Gibbons Jr., Professor Emeritus of Obstetrics and late Dean of the Cooper Medical College. Dr. Gibbons was born in Wilmington, Delaware, September 24, 1840, of colonial Quaker stock, and of a family many of whom were members of the medical profession. He was graduated from the San Francisco High School in 1856, at the age of 16 years. He taught school for a time and then entered the Medical College of the Pacific, from which he was graduated in 1863. Immediately after graduating, he went East to do post-graduate work in the University of Pennsylvania, but instead accepted the position of acting assistant surgeon in the United States Army in Washington, D. C. Returning to San Francisco, Dr. Gibbons was associated with his father in the practice of medicine and in the editorship of the Pacific

Medical Journal. He was elected Dean of the Medical College of the Pacific in 1871, which position he retained in this college and its successor, Cooper Medical College, until his death, thus devoting forty years of his life to the cause of medical education. In this institution he was Professor of Materia Medica and Therapeutics from 1871 to 1873, and from the latter date Professor of Diseases of Women and Children until his death on September 27th, 1911. In 1910 he was appointed Emeritus Professor of Gynecology and Obstetrics in Stanford University. Always active in civic affairs, he held the position of Health Officer of San Francisco for three years, and was at different periods member of the Board of Health and of the Board of Education.

In this same department Dr. Joseph Oakland Hirschfelder, Professor of Medicine, has been made at his request Professor Emeritus.

Dr. Alfred Baker Spalding has been made Professor of Obstetrics and Gynecology. Dr. Spalding is a graduate of Stanford (1896) and of Columbia University and has held a similar professorship in the University of California. Other appointments in Medicine are

New the following: Dr. George B. Somers, Clinical Pro-
Appointments fessor of Gynecology, in charge of the Lane Hospital;
in Dr. Langley Porter, Clinical Professor of Medicine,
Medicine assigned to Pediatrics; Dr. Harold P. Hill (Stanford 1898) Clinical Professor of Medicine; Dr. Harry Everett Alderson, Associate Clinical Professor of Medicine; Dr. H. B. Graham, Assistant Clinical Professor of Surgery; Dr. Rufus Lee Rigdon, Albert Brown McKee and Edward Cecil Sewall (Stanford 1898) Clinical Professors of Surgery; Dr. Andrew P. Hoisholt, Clinical Professor of Psychiatry; Dr. Thomas Addis of the University of Edinburgh, Assistant Professor of Medicine; Dr. James Eaves, also of the University of Edinburgh, Instructor in Surgery; and Drs. Florence M. Holschaw, Charles T. Fleischner, Walter W. Boardman, Morton R. Gibbons, W. R. P. Clark, H. W. Gibbons and Walter F. Schaller, Clinical Instructors in Medicine. Dr. Ruskin M. Lhamon, Instructor in Anatomy, has tendered his resignation, to become Professor of Anatomy in the University of Manila. The position has been filled by the appointment of Dr. Edgar D. Congdon of Cornell Medical

College. Dr. Lee Eloesser and Sol Hyman have been made Clinical Instructors of Surgery.

In Geology and Mining, Associate Professor Noah Fields Drake tendered his resignation at the close of the year, to accept the position of state geologist of Arkansas. He is succeeded by Professor Charles F. Tolman, a graduate of the University of Chicago, and since 1905 Professor of Geology at the University of Arizona.

On December 5, 1911, Dr. Branner was awarded by the Academy of Natural Sciences of Philadelphia the Hayden Gold Medal for 1911, "in recognition of the value of your individual contributions to geological science, and of the benefit derived from your able and conscientious discharge of the official trusts confided to you." (Extract from the letter of the Secretary.) Dr. Branner is the fifth American geologist to receive the Hayden Medal.

In Electrical Engineering, Professor W. A. Hillebrand has accepted the professorship in the Agricultural College of Oregon at Corvallis. Mr. Axel Nielsen has been appointed instructor in this department, and Mr. J. C. Clark (M. E. E. Harvard 1912) acting Assistant Professor. In the sabbatical absence of Professor Harris Joseph Ryan for the current year, Mr. John Andrew Koontz (Stanford 1908) and Mr. Eugene G. McCann (Stanford 1911) have acted as instructors.

In Mechanical Engineering, Associate Professor William Rankine Eckart has been raised to the rank of Professor, and Instructor Charles Norman Cross has been made Assistant Professor. As chief mechanic, Mr. F. D. Banham, late of the University Scientific Shop of Cambridge, England, has taken the place of Mr. F. A. Stevens.

In Civil Engineering, Instructor John Harrison Foss has been made Assistant Professor.

The rank of the Librarian, Mr. George Thomas Clark, has been changed from that of Associate Professor to that of Professor. Mr. J. E. Goodwin, Assistant Librarian, has accepted the position of Librarian of the University of Texas, and Mr. S. B. Mitchell, chief of the order department, has accepted a position in the University of California.

During the year the following fellowships have been provided: The Alumni Jordan Medical Scholarship Fund for the aid of medical students; the Bernard Scholarship in Entomology founded by Mrs. Matilda Bernard, widow of the late Henry M. Bernard of the University of Cambridge, England; and a graduate fellowship established by the Advisory Board of the Stanford Alumni Association.

As governing the relation of professors to outside employment, the following resolution has been passed by the University Board of Trustees:

"That the maintenance by salaried professors, exclusive of clinical professors of medicine, of offices for the solicitation and conduct of professional business should be discouraged as tending to impair the desirable devotion to university duties."

For the first semester of the year the President of the University was absent on sabbatical leave. His time was devoted to the work of the World Peace Foundation and was mainly spent in Japan. Sixty-four lectures in the interest of international conciliation were given by him in Japan and Korea. After returning from Japan, the President received from the Emperor Mutsuhito the decoration of the Second Order of the Sacred Treasure of the Meiji. He has also received for services in the cause of peace the gold medal of the Educational Society of Tokyo and the bronze medal of the Société de Conciliation Internationale.

The summer of 1912 was spent by him in the study of the effects of the Civil War on the people of the Southern States as shown fifty years after. In this work, undertaken in behalf of the World Peace Foundation, he was associated with Professor Edward Benjamin Krehbiel and with Professor Harvey E. Jordan of the University of Virginia. Mr. Laurance L. Hill (Stanford 1912) acted as secretary to the commission. In connection with this the President gave in the course of the summer twenty-seven lectures in behalf of international peace.

The University may here record its grateful appreciation of the many gifts received from various sources during the year.

Gifts

The list of these gifts follows:

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The University:

From Thomas Welton Stanford, \$50,000 to endow the Thomas Welton Stanford Fund for Research in Psychic Phenomena.

From the Advisory Board of the Alumni Association, \$120 for a graduate fellowship.

The University Library:

From Thomas Welton Stanford, \$500 annually for five years for purchase of books on psychic phenomena.

From H. C. Hoover, loan of large collection of books on China.

From David Starr Jordan, 72 books and 338 pamphlets.

From Timothy Hopkins, 17 books and 57 pamphlets.

From Horace Davis, 11 books and 93 pamphlets.

From J. C. Cebrian, San Francisco, a work in Spanish, "History of the Spanish Christian Architecture during the Middle Ages."

From the Library of the University of Basle, 57 pamphlets.

From the Library of the Royal University of Berlin, 352 pamphlets.

From the Cobden Club, 2 books and 50 pamphlets.

From the Library of the Erlangen University, 259 pamphlets.

From the Library of the University of Halle, 220 pamphlets.

From the Library of the University of Heidelberg, 428 pamphlets.

From the University of Kiel, 138 pamphlets.

From Königsburg University, 97 pamphlets.

From Royal Society of Victoria, 321 pamphlets.

From various institutions, societies and individuals, additional volumes to the number of 365 and pamphlets to the number of 3,262.

From the publishers and by gift from individuals, 207 serial publications.

The Lane Medical Library:

From Mrs. O. B. Dodge, \$5,000 endowing the "Henry Lee Dodge Memorial Fund" for the purchase of books for Medical Library.

From Luther J. Holton, \$500 endowing the "Luther J. Holton Fund" for the purchase of books and periodicals.

From Dr. W. R. Cluness, 150 volumes of medical books.

Department of Medicine:

From Directors of Cooper Medical College, \$20,000 endowing the Lane Medical Lectures.

From Mrs. Emily B. Hopkins, \$10,000 endowing a bed in Lane Hospital.

From C. A. Coffin, New York City, \$250 toward Research Fund in Oriental Diseases.

From Alumni Association, \$500 for the establishment of "The Alumni Jordan Medical Scholarship Fund," for the aid of medical students.

Department of Botany (The Dudley Herbarium):

From Mrs. John H. Walker, San Francisco, the late Dr. C. L. Anderson's collection of grasses, mosses and fungi, about 1,000 specimens.

From Associate Professor L. R. Abrams, 840 specimens of Sierra Nevada plants.

From S. B. Parish, 100 specimens of Southern California plants.

From the Department of Agriculture, 92 specimens of Dr. Myer's Chinese collection.

Department of Zoology:

From Professor S. Averinzeff of St. Petersburg, four tanks of marine animals from the equatorial Pacific.

From the Government of Japan, collections of fishes from various sources in Japan.

From Governor General Terauchi, Seoul, Korea, a collection of the fishes of Korea obtained by the Fishery Commission of Chosen.

Department of Chemistry:

From the Pacific Guano Fertilizer Company, San Francisco, samples of a number of fertilizers.

Department of Entomology:

From Mrs. Matilda Barnard, Cambridge, England, a scholarship of \$120 per annum and laboratory expenses.

Department of Geology and Mining:

From Ralph Arnold, \$100 for additions to Arnold collection; set of Tertiary fossils from Oregon and Washington.

From J. C. Branner, fossil plants from Bahia, Brazil; seven boxes of fossils from northern Brazil; specimens of land, fresh water and marine shells from Brazil; two diamond crystals from Minas Geraes, Brazil.

From G. C. Branner, specimen of weathered sandstone.

From B. Bryan, specimens of metallic copper, and crystals of calamine.

From R. H. Black, specimens of placer tin from Alaska.

From N. F. Drake, rock and mineral specimens, silurian fossils and marine shells from China.

From O. A. Derby of Rio de Janeiro, specimens of minerals from Brazil.

From Du Pont Powder Company, samples of powders, dynamite cartridges, fuses and caps.

From H. C. Dudley, Marble, Wisconsin, collection of typical iron ores and of rocks associated with iron.

From Goldfield Consolidated Mining Company, two hundred pounds of ore.

From F. L. Hess, Washington, specimens of hematite, hinsdalite, zirconiferous sandstone, ilmenite quartz pegmatite.

From Edward Hughes, Stockton, elephant tusks, teeth and bones found in dredgings.

From D. M. Folsom, photographs of geologic phenomena.

From F. H. Fowler, photographs of geologic phenomena in the Sierras.

From H. E. Kramm, Cornell University, specimens of gypsum and manganese ores from Canada.

From the heirs of Mr. John A. Thoman, through Mrs. S. T. Lisk of Silver Springs, Florida, "The John A. Thoman Natural History Collection," consisting of fifty-one boxes of miscellaneous geological specimens.

From Dr. M. A. R. Lisboa of Rio de Janeiro, collection of geologic phenomena in Brazil.

From R. J. McCann, placer miner's rocker and gold nugget from Alaska.

From R. B. Moran, a collection of Tertiary fossils from Ventura County, California.

From J. P. Smith, a large number of representative Mesozoic fossils from California.

From Spring Valley Water Company, San Francisco, a relief map of the bay region of San Francisco.

From Summer Class in Geology, a fine set of the Tertiary and Mesozoic fossils of Alameda and Santa Clara Counties.

From Thomas Welton Stanford, 240 specimens of rare Australian minerals.

From C. A. Waring, land and fresh water shells from northeastern Brazil.

From W. A. Williams, a set of Tertiary fossils and living shells from Peru and Ecuador.

From various sources, numerous specimens and miscellaneous minerals.

Department of Electrical Engineering:

From the Central Colorado Power Company, a specimen collection of high voltage line insulators and operating devices.

Department of Latin:

From Prof. M. M. Skinner, 1 Piranesi etching.

From Arthur Brown Jr., San Francisco, 1 copy of L'Illustration, with a photograph of Bigot's reconstruction of Imperial Rome.

Department of Education:

From American Book Company, D. C. Heath, Ginn & Co., and others, a large number of text books.

From various State Superintendents and City and County school officials, reports for the year.

From private individuals, 288 miscellaneous books.

Department of History:

From Miss Sallie Brown, Atlanta, Georgia, Avery's History of Georgia; Life and Times of Joseph M. Brown, War Governor of Georgia.

From the Permanent International Bureau of The Hague, various items and publications relating to International Conciliation.

From Miss Florence Reynolds, Stanford University, "Si Klegg and His Pard" (a rare first edition work on the Civil War).

Department of Law:

From the Stanford Law School Association, a scholarship of \$100.

From Mr. George E. Crothers, San Francisco, a scholarship of \$100.

From Mr. Louis Beedy, Francis V. Keesling and C. F. Doelger, a scholarship of \$100.

Appended herewith are given the customary reports by executive heads of departments, chairmen of committees, and other officers.

Respectfully submitted,

DAVID STARR JORDAN,

December 31, 1912.

President.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK.

The department faculty for the year 1911-12 consisted of Augustus T. Murray, professor; Ernest Whitney Martin, associate professor; and P. A. Knowlton, instructor (Latin and Greek).

The following courses were given:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Murray.....	3. Odyssey.....	3	.....	6
Murray.....	7. Advanced Prose Composition.....	2	3	5
Murray.....	8. Greek Sculpture.....	2	25	.....
Murray.....	11. Greek Tragedy (Reading).	3	4	6
Murray.....	14. Introductory.....	3	.....	4
Murray.....	16. Seminary.....	2	4	5
Murray.....	17. Rapid Reading.....	2	4	3
Murray.....	18. Greek Epic.....	2	47	.....
Murray.....	19. Greek Tragedy.....	2	.....	64
Martin.....	1. Elementary.....	5	8	7
Martin.....	4. Prose Composition.....	2	3	6
Martin.....	5. Homer.....	3	5	.....
Martin.....	6. Euripides.....	3	.....	5
Martin, Knowlton	13. Rapid Reading.....	1-5	10	10
Knowlton.....	12. Greek Testament.....	2	.....	4
			113	125

AUGUSTUS TABER MURRAY,
Professor of Greek.

LATIN.

In 1911-12 the department faculty consisted of H. Rushton Fairclough, professor; Jefferson Elmore and B. O. Foster, associate professors; P. A. Knowlton, instructor. Courses were also given by E. Whitney Martin, assistant professor of Greek, while equivalent courses in Greek were given by Instructor Knowlton of the Latin Department.

There were registered in the department during the year 34 major students, of whom 12 were graduates. Of these latter, 4 received the degree of Master of Arts.

The following is a tabular statement of the courses given and the enrollment in each:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Elmore.....	1A. Introductory.....	3	5	5
Elmore.....	1. Virgil and Cicero.....	3	13	14
Fairclough and Elmore.....	2. Terence, Cicero and Horace	3	23	.....
Foster.....	2. Terence, Cicero and Horace	3	.....	7
Fairclough.....	2. Terence, Cicero and Horace	3	.....	17
Knowlton.....	3. Justinian.....	2	15	11
Foster.....	4. Prose Composition I.....	2	11	9
Fairclough.....	5. Horace, Satires and Epistle	3	.....	11
Foster.....	6. Livy and Tacitus.....	3	10	.....
Elmore and Knowlton....	7. Prose Composition II.....	2	8	9
Foster.....	8. Roman Comedy.....	3	7	.....
Elmore.....	9. Cicero's Letters.....	2	.....	8
Knowlton.....	10. Petronius.....	2	3	.....
Knowlton.....	12. Lucretius.....	3	.....	8
Fairclough and Foster.....	13. Prose Composition III....	1	3	6
Foster.....	14. Juvenal and Martial.....	2	6	.....
Martin.....	15. Christian Latin.....	2	.....	6
Martin.....	18. Mediaeval Latin.....	3	3	.....
Foster.....	19. Roman History from the Sources.....	3	.....	6
Fairclough.....	22. Seminary Virgil.....	2-6	9	14
Fairclough.....	23. Rapid Reading.....	2	9	14
Martin.....	25. Introduction to Epigraphy	1	5	.....
Foster.....	26. Historical Grammar.....	2	3	.....
Elmore.....	29. History of Rome.....	3	.....	78
Fairclough.....	31. Roman Art and Monuments.....	2	.....	67
Knowlton.....	32. Roman Private Life.....	2	37	.....
Elmore.....	Thesis in Roman History.	1	1	.....
			171	290

Of the courses enumerated above, those indicated as 29, 31 and 32 require no knowledge of Latin.

HENRY RUSHTON FAIRCLOUGH,
Professor of Latin.

GERMAN.

During the academic year 1911-12 the teaching staff of the department consisted of George Hempl and James Owen Griffin, professors; Karl G. Rendtorff and William Alpha Cooper, associate professors; Macy Millmore Skinner and Bruno Boezinger, assistant professors; Herman Hilmer, instructor. Professor Skinner was in Europe during the year, his place being filled by Acting Assistant Professor George William Hauschild.

The following is a tabular statement of the number of students in the various courses:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Cooper, Hauschild, H. Hilmer	1. Elementary	5	69	58
	2A. Second Year Reading . . .	3	120	110
Hempl, Griffin, H. Hilmer, N. Hilmer, Hauschild	2AA. Scientific Reading	3	34	34
	2B. Second Year Composition	2	58	49
Boezinger	3. Classical Drama	3	55	58
	4. Modern Drama	2 or 3	48	47
Griffin, Hauschild, Boezinger	5. Modern Novel	2 or 3	21	15
	6. Advanced German	2	16	12
Griffin, Rendtorff	7. Composition	2	40	36
	8. Advanced Composition . . .	2	21	14
Hauschild	10. Schiller	2	15	7
	11. Goethe	3	15	9
Hempl	11A. Seminary	2	.....	3
	13. History of Literature	2	10	10
Boezinger, H. Hilmer	14. Teaching Modern Lang . . .	2	5	6
	16. Middle High German	2	6	3
Boezinger	19. Gothic	2	2	1
	21A. Hist. of German Civiliza- tion	2	6	8
Rendtorff	23. Thesis Work	Varies	4	7
	Total . . . . .	.....	545	487

There were registered in the department 78 major students, of whom 10 were graduates and 68 undergraduates. Of the graduate students, 4 were candidates for higher degrees, and at the close of the college year the degree of Doctor of Philosophy was conferred upon Herman Hilmer, and that of Master of Arts upon Misses Florence Haig, Irene Mersereau, and Ida Stauf.

GEORGE HEMPL,
Professor of Germanic Philology.

ROMANIC LANGUAGES.

During the academic year 1911-12 the teaching staff of the department consisted of Oliver Martin Johnston and Colbert Searles, associate professors; Clifford Gilmore Allen, Albert Léon Guérard, and Aurelio Macedonio Espinosa, assistant professors; Robert Edouard Pellissier, instructor.

The following is a list of the courses given during the year, with the attendance in each:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Allen, Pellissier..	1A. Elementary French.....	3	84	76
Pellissier.....	1B. Elementary French, Reading Course.....	3	24	23
Searles, Pellissier	2. Second Year French, Com- position.....	2	36	28
Guérard, Pellis- sier.....	3. Modern French Reading..	2	85	79
Guérard.....	4A. French Conversation.....	1	20	19
Searles.....	4B. French Pronunciation....	1	6	12
Guérard.....	5. Reading and Writing of French.....	3	19	21
Guérard.....	6. Advanced French Prose Composition.....	2	5	7
Searles.....	7. Outline Course in the His- tory of French Literature	3	12	12
Searles.....	8. Classical French.....	3	19	13
Searles.....	9. History of French Litera- ture in the Nineteenth Century.....	2	5	6
Guérard.....	10. Voltaire.....	2	6	.....
Guérard.....	11. Victor Hugo.....	2	.....	5
Pellissier.....	11A. French Novel.....	2	.....	5
Allen, Espinosa, Pellissier.....	12. Elementary Spanish.....	3	120	92
Allen.....	13. Second Year Spanish Com- position.....	2	23	16
Espinosa.....	14. Modern Spanish Reading.	2	43	37
Espinosa.....	15A. Spanish Conversation....	1	18	11
Espinosa.....	15B. Spanish Pronunciation...	1	1	2
Espinosa.....	16. Advanced Spanish Com- position.....	2	8	9
Allen.....	17. Classical Spanish.....	2	15	14
Espinosa.....	18. Modern Spanish Drama..	2	11	11
Allen.....	18A. Outline Course in the His- tory of Spanish Litera- ture.....	2	6	6
Johnston.....	19. Elementary Italian.....	3	12	10
Johnston.....	21. Dante and the Divine Comedy.....	2	.....	35
Johnston.....	22. Phonetics.....	2	4	.....
Johnston.....	23. Teacher's Course in French	1	.....	5
Johnston.....	24. Corneille.....	3	6	.....
Johnston.....	25. Introduction to the Study of Old French.....	2	2	2
Searles.....	The Technique of Modern French Fiction.....	3	2	.....
Guérard.....	Esperanto.....	1	2	.....
			594	556

There were registered in the department during the year 35 major students, of whom 1 was a graduate.

OLIVER MARTIN JOHNSTON,
Associate Professor of Romanic Languages.

ENGLISH LITERATURE AND RHETORIC.

The teaching staff of the department for the year 1911-12 consisted of Alphonso Gerald Newcomer, professor; Samuel Swayze Seward, Jr., Howard Judson Hall, Lee Emerson Bassett, Henry David Gray, William Dinsmore Briggs, assistant professors; Theresa Peet Russell, Everett Wallace Smith, Edith Ronald Mirrieles, Van Wyck Brooks, instructors; Elizabeth Lee Buckingham, Paul J. Batkin, acting instructors. Mrs. Evelyn Wight Allan, Dean of Women, conducted one course in Shakespeare.

The number of major students registered in the department was 139, of whom 2 were special students and 23 graduates. Twenty-five were given the degree of A. B., and 9 the degree of A. M.

Following is a table of the courses given, with the enrollment in each. In addition to these, Dr. Briggs gave two courses in the Department of English Philology:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Mirrielees, Batkin	A. Elem. Composition.....	1	131	82
Bassett.....	1A. Speaking Voice.....	1	64	67
Bassett, Buck- ingham.....	1B. Reading Aloud.....	3	54	69
Hall, Russell, Smith, Brooks	2. Composition.....	2	206	223
Seward.....	3. Note Taking.....	1	36	32
Newcomer.....	4. Modern English.....	2	24	.....
Russell, Hall....	5. English Classics.....	2	95	93
Newcomer, Brooks.....	6. Outline Hist. Lit.....	3	36	.....
Brooks.....	7. American Literature.....	3	.....	98
Bassett.....	11. Vocal Interpretation.....	2	12	14
Russell.....	12. Adv. Composition.....	2	23	25
Smith.....	13. News Writing.....	2	39	28
Bassett, Allan...	15. Shakespeare.....	3	92	35
Russell.....	16. Eng. Bible.....	3	.....	65
Seward.....	19. E. 19th Cent. Lit.....	2	10	12
Bassett.....	21. Public Speaking.....	2	48	35
Bassett.....	23. Public Reading.....	2	8	7
Briggs.....	24. Argument.....	2	31	29
Mirrielees.....	25. Short Story Writing.....	2	21	17
Gray.....	26. Play Construction.....	2	6	6
Smith.....	27. Current Newspapers.....	3	10	8
Hall.....	32. Restoration and 18th Cent.	3	29	27
Newcomer.....	34. Wordsworth.....	2	42	.....
Newcomer.....	35. Browning.....	2	.....	48
Gray.....	38. The Modern Drama.....	3	67	32
Seward.....	42. Teachers' Course.....	2	11	7
Briggs.....	54. Spenser.....	2	.....	1
Briggs.....	53. Marlowe.....	2	9	.....
Newcomer.....	55. Shakespeare's Sonnets....	2	.....	14
Gray.....	57. Seminary: Taine.....	2	14	3
Newcomer, Briggs.....	58. Journal Club.....	1	6	8
Total.....		.....	1124	1085

ALPHONSO GERALD NEWCOMER,
Professor of English.

ENGLISH PHILOLOGY.

During the academic year 1911-12 Dr. William Dinsmore Briggs of the Department of English Literature conducted the elementary course in Anglo-Saxon.

The central work of the department was done in the advanced courses

which aimed to elevate the character of graduate work and give the future teacher an independent attitude toward the problems of English Philology and some drill in the independent working up of fresh material in the line of philological investigation. The Seminary was devoted to a detailed study of the methods of English Lexicography and in connection with it papers were prepared by several students.

The following is a list of the courses given during the year:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Briggs.....	1. Anglo-Saxon.....	3	7	.....
Flügel.....	2. Elementary Chaucer.....	2	34	.....
Flügel.....	3. Early Literature.....	3	28	.....
Flügel.....	4. Middle English.....	2	9	.....
Flügel.....	7. Middle English.....	2	.....	5
Flügel.....	8. Advanced Chaucer.....	2	.....	26
Flügel.....	9. Ballads.....	2	.....	9
Flügel.....	11. Seminary.....	2	8	8
			86	48

Journal Club (see Department of English).

EWALD FLÜGEL,
Professor of Philology.

PHILOSOPHY.

The faculty of the department for the year 1911-12 consisted of Dr. H. W. Stuart, professor, and Dr. G. H. Sabine, assistant professor. The courses given, with the numbers enrolled, were as follows:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Stuart, Sabine...	Elem. Logic.....	3	42	.....
Stuart.....	Elem. Ethics.....	3	17	.....
Sabine.....	Hist. Philosophy.....	3	9	9
Sabine.....	XIX Cent. Phil.....	3	7	.....
Sabine.....	Phil. in XIX Cent. Life.....	3	.....	10
Stuart.....	Adv. Logic.....	3	.....	29
Stuart.....	Practical Ethics.....	3	.....	17
Stuart.....	Outl. Gen. Philos.....	2	11	9
Stuart, Sabine...	Seminary.....	.....	2	1
			88	75

During the second semester, courses in the philosophy of India and in Sanskrit were given by Mr. Har Dayal under the general auspices of the department.

HENRY W. STUART,
Professor of Philosophy.

PSYCHOLOGY.

The work in the department during the year was carried on by Frank Angell and Lillien Jane Martin, professors. The attendance in the several courses was as follows:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Angell.....	1. Gen. Psychology.....	4	164	.....
Martin, Angell...	2. Begin. Laboratory.....	3	18	20
Angell, Martin...	3. Recognition.....	2	3	3
Angell, Martin...	4. Adv. Laboratory.....	3	2	3
Martin.....	5. Applied Psychology.....	2	16	.....
Martin.....	6. Applied Psychology.....	2	39	.....
Angell, Martin...	7. Current Psych. Literature..	1	2	2
Angell, Martin...	9. Research Work.....	.....	2	2
			246	30

The small number of courses offered during the second semester was in part due to the absence of Professor Martin, who was pursuing an investigation in Germany on the projection of visual images.

In taking up the work of Psychical Research so generously endowed by Mr. Thomas Welton Stanford, the department is guided by the principle that the investigations, to be sound and scientific, must proceed from the simpler to the more complex phenomena. That is to say, before entering on the investigation of phenomena with extra-natural and often religious implications, it is necessary to enter thoroughly into questions of automatic action, mind-reading and telepathy, and also to work up the calculus of what may be termed inductive or practical probability. It would also be a source of great anthropological interest if a thorough study could be made of the magical rites and customs of the Australians. The collection of a small museum of instruments used for mystic rites and magical ceremonial has also been projected. The appointment of Dr. J. E. Coover to the Thomas Welton Stanford Fellowship ensures the services of a well-trained, careful and patient investigator in the field, and the friendly co-operation and laboratory facilities of the department will stand quite as much at his disposal as the income from Mr. Stanford's generous bequest. I have been in receipt of letters from several eminent

psychologists, congratulating the department on its opportunities for doing useful work in psychical research and suggesting in addition several paths of investigation.

FRANK ANGELL,
Professor of Psychology.

EDUCATION.

The members of the department for 1911-12 were Ellwood P. Cubberley, professor; Percy E. Davidson and Rufus C. Bentley, associate professors; Lewis M. Terman, assistant professor; Jesse B. Sears, instructor; George A. Clark, lecturer.

The following is the record of attendance in the several courses offered by the department during the year:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Cubberley	1. Public Education in America	2	155	. . . . .
Davidson	2. Introd. Educational Theory	2	. . . . .	66
Sears	3. History of Education in Europe	3	18	13
Davidson	7. Social and Moral Education	2	20	12
Davidson	8. Logic of Education	2	16	12
Cubberley	10. State School Administration	2	15	16
Terman	11. Physical Aspect of the Child	3	20	. . . . .
Terman	12. Educational Hygiene	3	. . . . .	46
Bentley	13. Secondary Education	3	. . . . .	63
Terman	14. Adolescence	2	17	. . . . .
Bentley	15. Administration of a School.	2	. . . . .	8
Bentley	16. Types of Secondary Schools	2	. . . . .	8
Sears	17. Method and Mgmt. of Instruction	1	14	22
Sears	18. Practice Teaching	4	22	12
Clark	19. Commercial Trs. Training Course	3	46	41
Cubberley	22. Statistical Method	2	. . . . .	4
Terman	24. Clinical Child Psychology.	2	. . . . .	10
Terman	25. Experimental Pedagogy . . .	2	11	11
Davidson	26. The Curriculum	2-5	12	6
Cubberley	28. Foreign School Systems . . .	2	5	6
Bentley	33. Thesis Work	1	3	. . . . .
Sears	33. Thesis Work	1	. . . . .	2
Terman	34. Special Courses	1-3	3	. . . . .
Davidson	34. Special Courses	2-4	3	. . . . .
Cubberley	35. Seminary	2	3	2
			207	300

I would like to call particular attention to the course of lectures given by Mr. G. A. Clark on commercial teaching. This course proved of great value to our students. One of the most important means of expanding the work of training teachers here would be the addition of a number of such courses with a view to preparing our graduates better for the work of public education.

ELLWOOD PATTERSON CUBBERLEY,
Professor of Education.

HISTORY.

The faculty for the department for the year 1911-12 consisted of Professors Ephraim Douglas Adams and Arley Barthlow Shaw; Associate Professors Edward Benjamin Krehbiel and Payson Jackson Treat; Assistant Professors Henry Lewin Cannon and Edgar Eugene Robinson; and Instructor Percy Alvin Martin.

President Jordan and Mr. Krehbiel spent a portion of the summer in the southern states, investigating certain effects of the Civil War. Their course in International Conciliation is continued as a part of the work offered by the Department of History.

The number of major students registered in the department for the year was 188, of whom 169 were undergraduates, 16 graduates and 3 specials.

The Master of Arts degree was conferred in May, 1912, upon 5 students
Linda May Bell—Thesis: Some British Magazines on America from 1815 to 1846.

Roy Francis Howes—Thesis: Charles Elliot as British Chargé to the Republic of Texas, 1842-1846.

Mabel Deborah Pratt—Thesis: William Kennedy and his Activities in Texas.

Marjory Seeley—Thesis: The Purpose of the Interdict, with Especial Reference to the Period 1216-1272.

Francis Packard Young—Thesis: John C. Calhoun as Secretary of War, 1817-1824.

The following is a list of courses given in 1911-12, with hours of credit and attendance for each semester:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Martin.....	1. Training.....	1	38	33
Show.....	3A. Middle Ages.....	3	122	.....
	3B. Middle Ages.....	3	.....	131
Cannon.....	4A. English History.....	3	65	.....
	4B. English History.....	3	.....	57
Krehbiel.....	5A. European History.....	2	115	.....
	5B. European History.....	2	.....	113
Robinson.....	6A. American Colonial History	2	34	.....
	6B. American Colonial History	2	.....	31
Adams.....	7. United States History....	2	102	102
Robinson.....	8. Westward Movement....	3	13	25
Treat.....	9A. The Far East.....	3	87	.....
	9B. The Far East.....	3	.....	123
Martin.....	10. Spain and Spanish Amer- ica.....	2	28	40
Cannon.....	11. English Constitutional...	2	37	.....
	11B. English Constitutional...	Various	.....	34
Martin.....	12. History of Germany.....	3	30	31
Show.....	13A. The Ancient Church.....	2	4	.....
	13B. The Mediaeval Church...	2	.....	5
Krehbiel.....	15A. Europe in the Nineteenth Century.....	3	23	.....
Show.....	16. Teacher's Course.....	2	25	22
Cannon.....	17. Periodical Literature....	1	12	14
Adams.....	18A. Eng. and Am. in Civil War	3	9	.....
	18B. Eng. and Amer., 1815 to 1860.....	3	.....	9
Jordan, Krehbiel	20. International Conciliation	3	.....	88
Treat.....	21. Tropical Colonization....	2	22	.....
Treat.....	22. History of Australasia...	2	.....	32
Show.....	27. Mediaeval Institutions...	2	.....	2
Robinson.....	28. Seminary in Westward Movement.....	2	5	5
Cannon.....	29. Seminary in English His- tory.....	2	14	12
Martin.....	30. The Renaissance in Italy.	2	4	4
Adams.....	31. American Diplomatic His- tory.....	2	9	9
Krehbiel.....	32. Seminary in Modern Euro- pean History.....	2	20	20
Treat.....	36. American Diplomacy in the Far East.....	2	6	6
	Thesis.....	Various	5	4
			829	952

EPHRAIM DOUGLAS ADAMS,
Professor of History.

ECONOMICS.

The work of the department for the year 1911-12 was carried on by Professors Alvin S. Johnson, Burt Estes Howard, Albert Conser Whitaker, Associate Professor Harry Alvin Millis; Instructor Ira Brown Cross; and Acting Instructors Donald F. Grass and M. Lippitt Larkin.

The courses given and the attendance were as follows:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Johnson.....	1. Elements of Economics...	3	290	228
Larkin.....	2. Market Organization.....	3	.....	47
Grass.....	3. Accounting.....	3	.....	50
Whitaker.....	4. Money and Banking.....	3	40	.....
Johnson.....	5. Railway Problems.....	3	.....	62
Whitaker.....	6. Corporations and Trusts..	2	53	.....
Johnson.....	7. Commercial Policy.....	3	46	.....
Millis.....	8. Public Finance.....	3	16	.....
Millis.....	9. Financial History of the U. S.....	2	16	.....
Millis.....	10. The Labor Problem.....	3	50	.....
Millis.....	10A. Labor Legislation.....	3	.....	22
Millis.....	11. Immigration.....	2	.....	31
Cross.....	12. Charities.....	3	84	.....
Cross.....	12A. Corrections.....	3	.....	56
Cross.....	13. Socialism.....	3	.....	56
Cross.....	14. Economic History of England.....	3	20	.....
Millis.....	15. American Methods of Taxation.....	3	.....	12
Johnson.....	16. History of Political Economy.....	2	18	13
Whitaker.....	17. Value and Income.....	2	5	.....
POLITICAL SCIENCE				
Howard.....	30. Comparative Federal Government.....	3	10	6
Howard.....	31. American Politics.....	3	39	.....
Howard.....	32. Municipal Government....	3	.....	79
Howard.....	34. Seminary in Political Sciences.....	2	14	.....
Howard.....	Special Work.....	.....	1	3
Total....			702	665

During the second semester Professor Whitaker was absent on leave, giving courses in the University of Chicago. At the close of the year Professor Whitaker was granted leave of absence for the year 1912-13, to continue his work at the University of Chicago. Professor Alvin S.

Johnson resigned his position at Stanford to become Professor of Economics at Cornell University. Professor Murray Shipley Wildman, of Northwestern University, was appointed Professor of Economics at Stanford, and executive head of the department for the year 1912-13.

ALVIN SAUNDERS JOHNSON,
Professor of Economics.

LAW.

The faculty of law for the year 1911-12 consisted of Professors Frederic Campbell Woodward, Arthur Martin Cathcart and Charles Andrews Huston, Acting Professor Howard L. Smith, and Associate Professor Joseph Walter Bingham. Professors Charles Henry Huberich and Wesley Newcomb Hohfeld were absent on sabbatical leave. The course in California Practice was given by Samuel Watson Charles, Esq., of Palo Alto.

The courses of instruction given and the enrollment in each were as follows:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Huston.....	1. Introduction to Law.....	2	.....	76
Smith.....	2. Criminal Law.....	3	.....	37
Smith.....	7. Conflict of Laws.....	3	46	.....
Bingham.....	11. Introduction to Property..	3-3	58	45
Bingham.....	13. Wills and Administration.	4	.....	43
Bingham.....	15. Future Interests.....	4	15	.....
Cathcart.....	18. Torts.....	3-3	47	43
Woodward.....	20. Contracts.....	3-3	57	47
Huston.....	23. Agency.....	4	.....	42
Huston.....	24. Partnership.....	3	25	.....
Huston.....	25. Private Corporations.....	4	43	.....
Cathcart.....	26. Public Service Companies.	3	.....	25
Woodward.....	27. Bankruptcy.....	2	37	.....
Huston.....	28. Insurance.....	2	.....	28
Woodward.....	29. Suretyship.....	3	.....	28
Smith.....	31. Equity I.....	4	58	.....
Cathcart.....	34. Damages.....	2	.....	30
Cathcart.....	35. Pleading.....	4	31	.....
Smith.....	36. Evidence.....	4	.....	21
Charles.....	37. California Practice.....	2	.....	21
			417	486

The registration of students in the law school was 117, of whom 37 were graduate students, 51 seniors in the pre-legal course, and 29 special

students. The registration of students in the pre-legal course, excluding seniors, who are counted as students in the law school, was 173. The total registration, including both law and pre-legal students, was 290.

The total number of volumes in the law library on August 1, 1911, was 15,184. During the year, 803 volumes were added. Of these, 484 were acquired by purchase, 24 by gift and 295 by binding. The total number of bound volumes in the library on July 31, 1912, was 15,987.

FREDERIC CAMPBELL WOODWARD,
Professor of Law.

GRAPHIC ART.

The personnel of the department faculty was as follows: Arthur Bridgman Clark, associate professor; Mrs. Chloe Leslie Starks and Henry Varnum Poor, instructors.

Associate Professor Robert B. Harshe has spent the year on leave of absence in study in London and Paris. He has also acted in the capacity of collecting agent for the art interests of the Panama-Pacific Exposition.

During the year exhibitions of painting and drawings were made by Mr. Poor and Mrs. Starks, instructors, and by Mr. Ernest Nelson, a student in the department.

The courses of instruction and attendance follow:

INSTRUCTOR	COURSE	Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Starks	1. Elementary	2 to 4	29	28
Poor	2 & 3. Costume Figure	2 to 5	22	38
Poor	4. Color (in oil)	2 to 4	13	18
Clark	5. Landscape	3	14	.....
Clark	6. Lectures on Painting	2	32	46
Clark	7. Organic Form	3	.....	17
Clark	11. Design	3	15	9
Clark	13. Handicraft	2	19	18
			144	174

ARTHUR BRIDGMAN CLARK,
Associate Professor of Graphic Art.

MATHEMATICS.

The instructing body was composed of Robert Edgar Allardice and Rufus Lot Green, professors; and Hans Frederik Blichfeldt, associate professor.

The program of work was as follows:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Blichfeldt	1. Trigonometry	2	30	.....
Blichfeldt	2. Solid Geometry	2	.....	24
Green	3. Algebra	5	67	.....
Green	4. Coordinate Geometry	5	.....	15
Allardice	6. Plane Geometry	2	15	12
Blichfeldt	7. General Course	3	14	13
Allardice	9. Calculus	3	15	13
Green	10. Advanced Coord. Geometry	2	12	11
Allardice	11. Advanced Calculus	3	4	.....
Allardice	12. Theory of Functions	3	.....	6
Blichfeldt	13. Non-Euclidean Geometry .	2	.....	2
Blichfeldt	15. Diff. Equations	3	5	5
Green	18. Theory of Equations	3	5	3
Blichfeldt, Allardice	19. Reading Course	2	4	3
Allardice	21. Projective Geometry	2	2	1
Green	Fundamental Principles . . .	3	2	2
			175	110

RUFUS LOT GREEN,
Professor of Mathematics.

APPLIED MATHEMATICS.

The instructing force of the department during the year 1911-12 was constituted as follows:

Professor L. M. Hoskins, Associate Professors H. C. Moreno and S. D. Townley, Assistant Professors W. A. Manning and E. W. Ponzer.

The courses of instruction given, with the enrollment in each, are shown in the following table:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Manning	A. Solid Geometry	2	20	. . . . .
Manning	B. Trigonometry	2	. . . . .	34
Moreno, Manning, Ponzer	1. First Year Mathematics . .	5	114	108
Manning, Ponzer, Townley	2. Calculus	3	99	93
Moreno, Town- ley, Hoskins . . .	3. Theoretical Mechanics . . .	5	99	96
Townley	5. General Astronomy	3	19	. . . . .
Townley	5A. Practical Astronomy	3	. . . . .	14
Townley	5B. Advanced Practical As- tronomy	1	. . . . .	1
Moreno	6. Graduate Course	4	1	1
Hoskins	†3A. Hydraulics	3	. . . . .	77
Hoskins	†3B. Hydraulic Motors	3	13	. . . . .
			365	424

†Scheduled under Engineering.

LEANDER MILLER HOSKINS,
Professor of Applied Mathematics.

CHEMISTRY.

The teaching staff in the Department of Chemistry for the year 1911-12 consisted of Professors John Maxson Stillman, Lionel Remond Lenox, Stewart Woodford Young, Robert Eckles Swain, Assistant Professor John Pearce Mitchell, Instructors William Henry Sloan, George Shambaugh Bohart, Harry Johnson Sears, Acting Instructor Alice Ruth Berger.

Professor Edward Curtis Franklin was absent on leave while occupying the position of Professor of Chemistry in the Hygienic Laboratory of the Bureau of Public Health and Marine Hospital Service at Washington, D. C. He is also granted sabbatical leave for the year 1912-13.

Attendance in various courses, Department of Chemistry, 1911-12.

LECTURE COURSES.

INSTRUCTOR	COURSE	UNITS		ATTENDANCE	
		1st Sem.	2nd Sem.	1st Sem.	2nd Sem.
Mitchell....	*1. General Inorganic....	2	2	151	124
Mitchell....	*1. General Inorganic....	3	2	52	47
Stillman....	*2. Principles.....	3	3	31	24
Swain.....	*3. Organic.....	2	2	28	23
Swain.....	†3A. Organic (Medical)....	.....	3	.....	26
Stillman....	*4. Industrial.....	2	2	21	20
Stillman....	†5. History of Chemistry.	2	.....	5	.....
Lenox.....	†6. Qualitative Analysis..	1	1	32	51
Young.....	*8. Physical Chemistry...	3	3	17	14
Young.....	†10. Applied Physical Chem.....	.....	2	.....	12
Swain.....	†11. Physiological Chem...	3	.....	16	.....
Stillman, Swain.....	*12. Seminary.....	1	1	15	14
				368	355

* Courses continuing through the year.

† Courses completed in one semester.

LABORATORY COURSES.

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Mitchell, Sears and assistants..	1A. General Inorganic.....	2	47	.....
Fulkerson, Goddard and Hawes	2A. General Inorganic.....	2	59	65
Lenox, Berger...	B. Qualitative Analysis.....	3	32	51
Bohart.....	C. Organic Preparations.....	3	8	15
Sloan.....	D. Quantitative Analysis....	3 to 4	17	18
Lenox, Sloan....	E. Mineral Analysis.....	3 to 4	3	8
Young, Jameson or Cross.....	F. Physical Chemistry Lab...	3 to 5	10	4
Swain, Horn....	G. Physiological Chem.....	3	16	.....
Lenox, Lacy....	H. Assaying.....	3	16	13
Stillman.....	Advanced, Special or Research.....	2	1	.....
Lenox.....	Advanced, Special or Research.....	2 to 4	2	2
Young.....	Advanced, Special or Research.....	3 to 5	4	6
Swain.....	Advanced, Special or Research.....	3 to 5	5	11
			220	193

All laboratory courses arranged to be completed in one semester.

Work of research carried on during the year was as follows:

Professor Young prosecuted a study of the conditions affecting the catalytic reactions involved in his method of reducing the sulphur dioxide in smelter fumes to sulphur. He also, with assistance of students, conducted certain studies of colloidal solutions, as noted below. Professor Swain, working in collaboration with Professor Peirce of the Department of Botany and Assistant Professor Mitchell of this department, completed the study of the effects of smelter smoke on vegetation carried on for the past two years under the authorization of the United States Department of Justice. During the summer 1912 he was also employed in field work for the Referee Board of the Department of Agriculture in connection with the question as to the sulphuring of dried fruits.

Assistant Professor J. P. Mitchell collaborated with Professor Swain and Professor Peirce in the above mentioned study of the effect of smelter smoke upon vegetation, and was also during the present summer employed in the study of the amount, character and distribution of the cement dustfall in the neighborhood of Colton, Cal., with reference to the local influence of cement dust upon vegetation. He also continued the collection of data concerning the normal constituents of the underground waters of this peninsula.

Mr. Geo. S. Bohart, instructor in Chemistry, completed the study of some reactions of Cadmium, Nickel and Chromium salts in liquid ammonia and presented the subject in his thesis toward his master's degree. Mr. Bohart was also associated with Professor Mitchell in the study of cement dust above mentioned. Instructor H. J. Sears and Assistant Eloise Jameson, under direction of Professor Young and Professor Zinsser of the Division of Bacteriology, studied the cataphoresis and agglutination of bacteria and serum proteins. The results of their study were presented as the thesis for the master's degree.

Mr. Charles M. Fulkerson, under direction of Professor Swain, studied the influence of ether anesthesia and alcohol narcosis on the production of glycosuria, in partial fulfillment of requirements for the master's degree. Mr. J. S. Horn studied nitrogen metabolism in a case of chronic uranium poisoning. The work constituted his master's thesis under the direction of Professor Swain.

Miss Helen May Nagel studied under direction of Professor Swain the occurrence of Allantoin in plant tissues. The results constituted her thesis for the master's degree. Mr. Ralph C. Pollock, under direction of Professor Young, made a study of the influence of electrolytes on the cataphoresis of colloidal arsenious sulphide, and presented the results as his thesis for the master's degree.

JOHN MAXSON STILLMAN,
Professor of Chemistry.

PHYSICS.

The teaching faculty of the Physics Department for the year 1911-12 consisted of Professor Fernando Sanford, Associate Professor Frederick J. Rogers, Assistant Professors Elmer R. Drew and Joseph G. Brown, Instructor Perley A. Ross. The total registration of major students was 15, of whom 6 were graduates and 9 were undergraduates. Two bachelor's and 2 master's degrees were given in the department.

The courses of study, with the enrollment in each for the year, are given in the following table:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Ross, Burbidge.	1. Dynamics.....	5 & 3	36	9
Drew, Richard-son.....	2. Elec. & Mag.....	4	11	.....
Ross, Hyatt....	3. Heat.....	3	.....	11
Brown, Hyatt...	4. Sound.....	3	6	.....
Brown, Richard-son.....	5. El. Optics.....	3	.....	8
Brown, Hyatt...	6A. Eng. Physics.....	5	33	.....
Rogers, Bur-bridge.....	6B. Eng. Physics.....	6	.....	36
Drew, Burbidge and Moffitt....	7. Phys. for Med.....	4	17	18
Rogers, Moffitt..	9. Elec. Meas.....	6	26	.....
Sanford.....	10. Adv. Optics.....	2	.....	2
Sanford.....	11. Gen. Physics.....	5	6	6
Sanford.....	13. Teacher's Phys.....	1	3	2
Rogers.....	18. Adv. Elec.....	4	6	.....
Sanford.....	19. Investigation.....	.....	5	5
			149	97

FERNANDO SANFORD,
Professor of Physics.

BOTANY.

With the beginning of the year the two departments of botany, which had worked side by side for years, were merged into one, under the leadership of Professor Campbell. The personnel of the department was as follows: Professor Douglas Houghton Campbell, Professor George James Peirce, Associate Professor LeRoy Abrams, Assistant Professor Leonas Lancelot Burlingame, Instructor James Ira William McMurphy.

The courses, with the enrollment in each for the year, are given in the following table:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Campbell, Peirce, Abrams, Burlin- game, McMur- phy.....	1. Elementary.....	3 to 3½	48	45
Abrams.....	1A. Field.....	1	.....	16
Campbell.....	2. Algae.....	5	9	.....
McMurphy.....	3. Fungi.....	4	7	.....
Campbell.....	4. Archegoniatae.....	5	.....	12
Burlingame.....	5. Gymnosperms.....	3	.....	3
Abrams.....	6. Angiosperms.....	3	.....	2
Peirce.....	7. Physiology.....	1	26	.....
Peirce.....	8. Physiology.....	3	3	.....
Peirce.....	9. Physiology.....	3	.....	8
Burlingame.....	10. Anatomy.....	3	9	.....
Abrams.....	11. Geographical.....	3	6	.....
Campbell.....	13. Archegoniatae.....	3 to 6	4	4
Peirce.....	16. Physiology.....	3 to 6	1	.....
			113	90

Professor Campbell, away on leave of absence for the current year, has been occupied with the material which he has collected on his various expeditions to tropical and sub-tropical countries, and has published a number of shorter papers. Two books, "Plant Life and Evolution" and "The Comparative Morphology of the Eusporangiatae," have appeared during the year.

Professor Peirce has continued his experimental work, with Professors Swain and Mitchell of the Department of Chemistry, on the effects of smelter fumes on vegetation. A report of this work—chemical, physiological and anatomical, supplementing observations in the field—will be made this year. Other experimental work has been conducted on Respiration and on the formative influence of light.

Associate Professor Abrams has continued his studies of the flora of southern California. He has made collections and studies of the Coniferae growing on the University grounds.

Assistant Professor Burlingame has in the press papers embodying the results of his minute morphological studies of the Araucariae. These peculiar trees, fruiting abundantly in some of the residence grounds in this neighborhood, have long attracted the interest of botanists.

Miss Hallie D. M. Jolivette, assistant, finished her studies of the reactions of certain fungi to light stimuli, and passed the examination for the degree of Doctor of Philosophy.

Five advanced students have carried on various pieces of work in the

lines represented by the members of the Department, but these studies are not yet ready for publication.

Soon after the beginning of the year a service in memory of the late Professor Dudley was held in the College Chapel and later in the year students and alumni who had been students of Professor Dudley met to acknowledge their obligations to him. Two alumni and the colleagues of Professor Dudley have united in preparing a volume in his honor. This volume will also contain two of Professor Dudley's own unpublished papers, and will appear as one of the series of university publications.

The report of the Curator of the Dudley Herbarium is appended.

GEORGE JAMES PEIRCE,
Professor of Plant Physiology.

THE DUDLEY HERBARIUM.

The general collection of mounted plants was increased by 5407 sheets. A separate collection of local plants has been mounted to meet the needs of students working on the local flora. Several large acquisitions were made to the Herbarium during the year. Notable among these were 800 specimens from the National Herbarium and 1000 specimens from the University of California, both of which were acquired through exchange. The Curator of the Herbarium spent six weeks of the summer vacation collecting in the Sierra Nevada and brought back approximately 3000 specimens.

LEROY ABRAMS,
Curator of the Dudley Herbarium.

PHYSIOLOGY AND HISTOLOGY.

The teaching force and laboratory assistants in the department were as follows: Oliver P. Jenkins and Frank M. McFarland, professors; Clara S. Stoltenberg, associate professor; J. Rollin Slonaker, assistant professor; Frank W. Weymouth, instructor.

Professor McFarland continued his work upon various Nudibranchs during the year. During the summer of 1912 he was in charge of the summer session of the Marine Biological Laboratory of the University at Pacific Grove.

Associate Professor Stoltenberg has continued her investigations on the nerve tracts in the brain and spinal cord of rodents.

Assistant Professor Slonaker and Karl Schaupp have been studying the effects of a strictly vegetable diet on the fecundity of the white rat, the character, number and rate of growth of the young through several successive generations. In conjunction with Dr. Casey A. Wood of Chi-

cago, Dr. Slonaker has also been making a detailed study of the visual apparatus in birds.

Instructor Weymouth has during the year published a paper on Observations on the Habits of the Crustacean *Emerita analoga*, Smithsonian Miscellaneous Collections, vol. 59, No. 7. He has also been engaged in investigations of the life history of the edible crab, *Cancer magister*.

Research work was carried on by Mr. H. F. West and Miss Elsa Will, students in the department, on the development of the tissues of the larval Salamander in vitro.

In the following table of statistics the numbers by which the courses are designated are those used in the register for 1911-12, to which reference may be made for more detailed explanation of the character of the courses.

INSTRUCTOR	COURSE	Unit Hours	HOURS PER WEEK		ATTENDANCE	
			Lec.	Lab.	1st Sem.	2nd Sem.
Jenkins, Slonaker, Weymouth, Schaupp...	1. General Anatomy and Physiology...	3	1	5	79	70
Jenkins, Slonaker, Schaupp...	2. Physiology of Mus- cle, Blood and Cir- culation.....	3	1	5	38	... ..
Jenkins, Slonaker, Schaupp...	3. Phys. of Digestion, Respiration, etc...	3	1	5	.....	33
Stoltenberg.	4. The Structure of the Sense Organs....	3	1	5	25	.....
Stoltenberg.	5. The Structure of the Nervous System..	3	1	6	.....	26
Jenkins, Weymouth.	6. Physiology of the Nervous System..	3	1	5	17	.....
Jenkins....	8. Special Courses in Physiology.....	.....	2	.....	2	6
McFarland..	9. Histology.....	3	1	6	36	34
McFarland..	13. Special Courses in Histology	2-4	.....	6-12	6	6
Jenkins, McFarland.	14. Journal Club.....	1	1	.....	23	18
McFarland..	15. Research in Histol- ogy.....	2-3	.....	6-9	.....	2
					226	195

OLIVER PEEBLES JENKINS,
Professor of Physiology.

PHYSICAL TRAINING AND PERSONAL HYGIENE.

ENCINA GYMNASIUM.

The gymnasium staff for the year was composed of Assistant Professor Royce Reed Long and Instructor Harry Wilfred Maloney.

The following table gives the statistics for 1911-12:

INSTRUCTOR	COURSE	Hours per Week	Unit Hours	ATTENDANCE	
				1st Sem.	2nd Sem.
Long, Maloney, and assist- ants..... Long.....	1. Physical Training....	3 Gym.	1	344	300
	2. Physical Training Methods.....	3 to 6 Lab. & Gym.	1 or 2	7	7
				351	307

Of the above number 301 the first semester and 266 the second semester were enrolled for credit. Thirty-four the first semester and 43 the second semester enrolled for work without credit and paid the regular gymnasium fee.

The gymnasium was used approximately 28,869 times, and 18,573 baths were taken during the year. Through the cooperation of Dr. R. L. Wilbur of the Department of Medicine, all of the men taking gymnastic work and all participating in competitive athletic games were given a medical examination by members of the medical department staff. Three hundred and fifty-three "first" examinations during the fall semester, and one hundred and eighty-three in the second semester, were made. In addition there were 156 subsequent examinations of men having physical defects of various kinds. Six men were kept out of competitive sports; fifty-six were kept under observation for periods varying from a week to the entire year; and special exercise was prescribed in about one-half this number of cases.

The gymnasium is an important factor in the health conservation of the students who take advantage of the opportunity for exercise afforded them. It is also a factor in promoting a wholesome democracy among them. Here all mingle on an equal footing under conditions most favorable for normal acquaintanceship.

ROYCE REED LONG,
Assistant Professor and Director of Physical Training.

PHYSICAL TRAINING AND PERSONAL HYGIENE.

ROBLE GYMNASIUM.

The teaching in Roble Gymnasium has been carried on by Clelia Duel Mosher, assistant professor, director of the gymnasium; Henry Wilfred Maloney, instructor in fencing; Maud Cleveland, assistant; Edna Grace Davis and Maude L'Anphere Crook, student assistants.

All the teaching in Hygiene has been given by the Director of Roble Gymnasium. This has been arranged as follows:

- 1. A hygiene conference with such physical examination as has seemed advisable has been given every woman entering the University as a new student, and all women returning after an absence of one or more semesters. This conference takes the place of the entrance physical examination usually given in most colleges by seven or eight examiners.
- 2. A conference with every woman enrolled in Physical Training work has been held once or twice a month, thus insuring a close supervision of the effect of the work on the individual student.
- 3. Informal talks on Hygiene, Eugenics and kindred topics have been given to small groups of women who are not taking active exercise at the time. Selected readings on similar topics have taken the place of these talks when other duties have occupied the time of the Director. These classes have been held from 15 to 20 times per week for both semesters.
- 4. In the second semester two lectures per week in Personal Hygiene have been given. This course is open to all registered women.
- 5. An office hour open to any woman in the University has been held five days in the week in the office of the Public Health Committee in the Inner Quadrangle.

The following table gives the statistics of these subjects:

INSTRUCTOR	COURSE	Hours per Week	Unit Hours	ATTENDANCE	
				1st Sem.	2nd Sem.
Mosher, Maloney, Cleveland, Davis, Crook.....	Physical Training and Personal Hygiene ...	3	1	156	235
Mosher.....					
	Personal Hygiene.....	2	1	.....	13
	METHODS:				
Davis.....	A. Practice Teaching.....	2	1-2	6	5
Crook.....	B. Applied Anatomy.....	3	2	5	.....
Cleveland...	C. Playground Administra- tion.....	1	1	9	.....
				176	253

The enrollment in the gymnasium for the past three years has been as follows:

	First Semester	Second Semester
1909-10.....	80	70
1910-11.....	116	175
1911-12.....	176	253

The congestion in the dressing and shower rooms was partially relieved by the addition of five showers and ten dressing sooms. The space for this much needed improvement was made available by transferring the examining room to the third floor, formerly a store room.

A study of the swimming pools of seven eastern institutions was made by the Director during the spring of last year. A plan has been outlined for an ideal swimming pool for the Stanford women.

The work of the Medical Adviser to Women has been intimately associated with the Hygiene work. In accord with the policy of the Public Health Committee, no medical treatment has been given. Conditions requiring more than the alteration of the hygiene of the individual have been referred to some practicing physician chosen by the student. The Medical Adviser has also had the administration for the Public Health Committee of the entrance vaccination requirement for the women.

CLELIA DUEL MOSHER,
Medical Adviser to Women and Director of the Women's Gymnasium.

ZOOLOGY.

The faculty of the department for the year 1911-12 was as follows: Charles Henry Gilbert, George Clinton Price and Harold Heath, professors; John Otterbein Snyder, associate professor; Edwin Chapin Starks and Walter Kenrick Fisher, assistant professors.

Professor Gilbert continued his investigations on the life history of the Pacific Salmon and on the bathybial and pelagic fishes of Bering Sea and Japan.

Professor Heath continued his work on a monographic report of the Solenogastres of the Western Atlantic Ocean. In collaboration with Mr. E. A. McGregor a report was prepared on the polyclads of Monterey Bay. Under his supervision special studies were carried on by W. F. Thompson on The Development of a Chiton, *Trachydermon raymondi*; by J. H. Paine on the genus *Ancylus*; by Josephine Randall on The Innervation of the Crustacean Heart.

Assistant Professor Fisher continued the preparation and illustration

of a report on an extensive collection of Philippine and East Indian starfishes, collected by the United States Fisheries steamer "Albatross," 1907-10, and prepared a preliminary paper covering new forms in this collection. With C. H. Richardson, a student in the department, he began the study of a collection of serpent stars collected off California and Alaska by the steamer "Albatross" in 1903 and 1904.

Associate Professor Snyder was engaged during the year in a study of the fishes of the streams and lakes that were at one time connected with the quaternary Lake Lahontan, in Nevada. Through the interest of the United States Bureau of Fisheries, three expeditions were made to the field and a large number of specimens collected.

Assistant Professor E. C. Starks spent the summer of 1911 on the Stanford Expedition to Brazil and the following year in preparing a report on the fishes taken by the expedition.

The courses of instruction offered, with attendance, were as follows:

INSTRUCTOR	COURSE	HOURS		ATTENDANCE	
		Lec.	Lab.	1st Sem.	2nd Sem.
Price, Starks.....	1. Elementary Zoology...	1	6	36	30
Fisher.....	2. Elementary Zoology— spec.....	.....	6	10	9
Heath.....	3. Invertebrate Anatomy.	1	6	10	10
Heath.....	4. Invertebrate Embryol- ogy.....	.....	6	.....	5
Heath.....	5. Invertebrates (Adv.)..	.....	6-9	3	2
Heath.....	6. Microscopical Anatomy	.....	6	1	.....
Fisher.....	8. Invertebrates (Spec. Syst.).....	.....	6-9	.....	1
Snyder.....	9. Vertebrates (Class.)...	.....	6	12	13
Snyder.....	10. Comp. Anat. Verte- brates.....	.....	9	4	1
Price.....	11. Vertebrate Embryology	1	5	17	6
Starks.....	12. Ichthyology.....	.....	6-9	6	5
Gilbert.....	13. Ichthyology (Adv.)...	.....	12	.....	1
Gilbert.....	14. Journal Club.....	2	.....	9	10
Snyder.....	15. Vertebrates (Adv.)....	.....	.....	3	4
				111	97

CHARLES HENRY GILBERT,
Professor of Zoology.

ENTOMOLOGY AND BIONOMICS.

The faculty of the department in 1911-12 was composed of Vernon Lyman Kellogg, professor (absent on leave during second semester);

Mary Isabel McCracken, assistant professor; Rennie Wilbur Doane, assistant professor and curator. David Starr Jordan gave lectures on Organic Evolution.

The number of major students was 18, of whom 5 were graduate students. Courses given were as follows, with attendance as indicated:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
McCracken	1. Elementary Ent.	3	18	28
McCracken	1A. Morphol. and Phys. of Insects.	3	5	8
McCracken	2. Classif. and Devel. of Insects.	4	1	4
McCracken	Adv. Lab.	4-5	1	1
Doane	3. Econ. Ent. Forest Insects. .	2	2	.....
Doane	3A. Econ. Ent. Orchard and Garden Insects.	2-3	.....	7
Doane	4. Econ. Ent. Coccidae.	2-3	5	.....
Doane	5. Insects and Disease.	1-2	9	.....
Doane	7. Econ. Ent. Adv. Lab. and Field.	3	.....	9
Kellogg	Adv. Lab.	3-5	5	.....
Kellogg	Grad. Thesis Work.	3-4	3	.....
Jordan, Kellogg and McCracken.	8. Organic Evolution.	2	.....	171
			49	228

Investigations were carried on during the year by Professor Kellogg on distribution and species-forming of ectoparasites; by Assistant Professor McCracken, on heredity in silk-worms (8th year); and by Assistant Professor Doane on the classification of the Tipulidae, and on certain injurious insects of forest and foliage trees.

The following students' investigations may also be noted: By E. H. Coleman on the poisonous effects of the venom of the "black widow" spider, *Latrodectus mactans*; by Frankie Willard, on the classification and life history of the Mycetophilidae; J. H. Paine on Mallophaga; C. E. Johnson, on the life history and morphology of the cottony cushion scale, *Icerya purchasi*; D. L. Crawford, on the habits and anatomy of the petroleum fly, *Psilopa petrolei*, and on the classification of the Delphacidae.

All the recent male graduates of the department have received appointments as professional entomologists. These appointments have carried their recipients to Japan, Peru, the Hawaiian Islands, Porto Rico, and various parts of the United States.

VERNON LYMAN KELLOGG,
Professor of Entomology.

GEOLOGY AND MINING.

The department faculty for the year 1911-12 consisted of Professors J. C. Branner, J. P. Smith; Associate Professors N. F. Drake, A. F. Rogers, D. M. Folsom, G. H. Clevenger; Instructor H. W. Young, Acting Instructor E. C. Templeton and Curator in Geology C. H. Beal.

The following additions to the equipment of the department were made during the year:

Geology.—Three sets of book shelves for the geological library and one set of shelves built into room 332.

Paleontology.—The teaching collection has been enlarged by the purchase of sets of invertebrate fossils from Ward of Rochester, and by the addition of a representative set of reef-building corals.

Mineralogy and Petrography.—The petrography building was remodeled. A rock-grinding apparatus and tables and lockers for microscopes were installed. Six mahogany drawer cases for rock specimens were purchased. Other additions include a two-circle goniometer for measuring crystals and a second-hand polarizing microscope.

Mining.—Additions to the mining department include a model of an ore bin made by Mr. T. W. Thompson.

Metallurgy.—A number of minor changes and improvements were made in the metallurgical laboratory during the year.

Mr. Branner returned to the University in August and has been engaged in the preparation of reports upon the results of his work in Brazil. He has published during the year several papers relating to the geology and geography of Brazil, and has in preparation a new and larger edition of his Portuguese text book of elementary geology for Brazilian students.

During the year Mr. Branner has bought and added to the library in the department of geology the special library of Professor S. F. Peckham relating to petroleum and bitumen.

During the summer of 1911 Mr. J. P. Smith was engaged in investigations for the United States Geological Survey in the Mesozoic stratigraphy of northern California, Nevada and Oregon, assisted by Mr. H. S. Coe. These investigations were continued during June, 1912, with the assistance of Mr. C. H. Davis. Part of the results of these investigations have been published by Mr. Smith in the *Journal of Geology*, *American Journal of Science*, *Popular Science Monthly*, and *Proceedings of the California Academy of Science*.

Mr. Drake has been invited by the International Congress of Geologists to prepare for the next meeting a paper upon the coal deposits of China, and he has spent such time as his University duties permitted in its preparation. He has also prepared and published in the *Bulletin of the Seismological Society of America* a valuable article on destructive earthquakes in China, covering a period of four thousand years. Mr.

Drake resigned at the end of the year to accept the position of State Geologist of Arkansas and Head Professor of Geology in the University of Arkansas.

Mr. Rogers collected minerals in Lyon County, Nevada, and in El Dorado and San Benito counties, California. Mr. Rogers' "Introduction to the Study of Minerals," a combined text-book and pocket manual, published by the McGraw-Hill Company in May, 1912, has been favorably received and will be used as a text-book at a number of universities.

Mr. G. H. Clevenger has completed the work, undertaken in connection with another well known metallurgist, for the development of a hydro-metallurgical process for the recovery of silver from the high grade silver ores of the Cobalt district of Ontario, Canada. The technical and commercial success of this work is shown by the production of several million ounces of silver by the process to date. Recently the precipitation of gold, silver and copper from cyanide solutions has been investigated, and during the summer field work has been done in Nevada, Colorado and South Dakota. Last fall the Lake Superior mining district and the Omaha plant of the American Smelting and Refining Company at Omaha, Nebraska, were visited.

Mr. H. W. Young, during the summer, has visited the metallurgical centers of Washington and British Columbia, and has made a collection of metallurgical specimens which will be available for university work. With Mr. Clevenger he has been investigating the behavior of the silver amalgam under high pressures.

Mr. T. N. Turner, with Mr. Clevenger, has calculated a set of tables for use in connection with slime treatment by the cyanide process.

The following table shows the courses given in the department during the year, and the attendance of students:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
GEOLOGY				
Branner.....	1. Elementary Geology.....	3	223	.....
Branner.....	1A. Physiography.....	1	.....	65
Branner.....	2. Economic Geology.....	2	.....	80
Drake, Temple- ton, Packard...	3. Topographical Geology...	4	.....	27
	4. Field Geology.....	5	.....	25
Rogers, Boundey	5. Mineralogy.....	3	23	25
Rogers.....	6. Petrography.....	2	20	18
Smith.....	7. Elementary Paleontology	4	12	23
Smith.....	8. Research in Systematic Paleontology and stra- tigraphy.....	2-5	5	7
Rogers.....	9A. Crystal Morphology.....	2	.....	2
Rogers.....	9C. Chemical Mineralogy....	3	2	1
Rogers.....	9D. Paragenesis of Minerals...	2	5	.....
Rogers.....	9X. Technique.....	2	1	.....
Smith.....	10A. Geologic History of the Great Basin.....	2	2	.....
Smith.....	10B. Geologic History of Cal...	2	.....	11
Drake.....	11. Special Courses.....	1-3	1	3
MINING AND METALLURGY				
Folsom.....	1. Mining Methods.....	5	20	.....
Folsom, Clevenger.....	2. Ore Dressing.....	2	.....	22
Folsom.....	4. Mine Machinery.....	3	.....	21
Folsom.....	5. Advanced Ore Dressing....	2	8	.....
Folsom.....	6. Mine Engineering and Mine Costs.....	2	.....	6
Folsom, Templeton.....	7. Thesis.....	2-5	9	4
Clevenger, Young.....	8. General Metallurgy.....	4	.....	28
Clevenger.....	9. Metallurgy of Constructive Materials.....	2	50	.....
Clevenger.....	10. Metallurgy of Gold and Silver.....	2	27	.....
Young.....	Metallurgy: A. General Metallurgy Laboratory..	2	.....	6
Young.....	Metallurgy: B. Metallurgy of Gold and Silver Lab- oratory.....	3-4	11	6
Clevenger.....	Metallurgy: D. Metallur- gical Research.....	2-6	.....	2
Totals.....			419	382

JOHN CASPER BRANNER,
Professor of Geology.

CIVIL ENGINEERING.

During the year 1911-12 the work of the Department of Civil Engineering has been carried out substantially as in former years. There has been an increase in the number of advanced students, candidates for the degree of Engineer necessitating the giving of special courses, as listed below, to a small number of students. This extra work, however, was carried without any increase in the teaching staff. The departments of Chemistry and Bacteriology, through Dr. Stillman and Dr. Zinsser and Assistant Professor Mitchell, have again given special short courses in Chemistry and Bacteriology suited to the needs of the students in Civil Engineering. The Department of Civil Engineering expresses its appreciation for the help given.

Below are booked the courses given during the past year:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Foss and Assistants	1A. Linear Drawing	1	92	5
Foss and Assistants	1B. Descriptive Geom.	1-4	128	103
Fish and Assistants	4A. Elem. Surveying	5	68	.....
Fish and Assistants	4B. Elem. Surveying	2	51	.....
Fish and Assistants	6A. Railroad Surveying	5	.....	49
Fish and Assistants	6B. Railroad Location	2	32	.....
Fish and Assistants	6C. Railroad Construction	2	.....	9
Wing and Assistants	2. Applied Mechanics	5	78	.....
Hoskins	3A. Hydraulics	3	.....	77
Hoskins	3B. Hydraulics	3	9	.....
Wing and Assistants	8A. Elements of Design	3	32	.....
Wing and Assistants	8B. Elements of Design	5	.....	30
Wing and Assistants	8C. Elements of Design	3	5	20
Wing and Assistants	9. Railway Bridges	5	29	19
Marx	12. Water Supply Eng.	5	35	29
Marx	16. Seminary	1-2	2	1
Marx	15. Construction	4	1	.....
Marx	13. Sanitary Eng.	5	.....	6
Marx	Special	5	1	.....
Marx	Special	2-6	.....	5
			563	353

During the year plans were worked up by Professor Wing for changing the old power house into a Mechanics of Material Laboratory and for building a small hydraulic laboratory. With the hearty cooperation of the business manager, Mr. Lathrop, it is hoped that the new laboratories will be ready by the fall of 1913.

CHARLES DAVID MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING.

The teaching force in the department for the year 1911-12 was as follows: William Frederick Durand, Professor of Mechanical Engineering; Guido Hugo Marx, Professor of Machine Design; William Rankine Eckart, Associate Professor of Experimental Engineering; Everett Parker Lesley, Assistant Professor of Mechanical Engineering and Superintendent of Shops; Lawrence Edminster Cutter, Instructor in Drawing; Charles Norman Cross, Instructor in Experimental Engineering; Harry Harmon Blee, Instructor in Mechanical Engineering; Edward John Stanley, Instructor in Woodworking and Pattern Making; James Bennett Liggett, Instructor in Foundry; Theron James Palmateer, Instructor in Machine Shop; Robert Henry Harcourt, Instructor in Forge Shop.

During the first semester 1087 student hours of instruction were given by 11 instructors, or an average of 99 per instructor. The similar figures for the second semester are a total of 1090 student credit hours, and an average per instructor of 99.

The general policy of adding some valuable item of equipment in the shops and laboratories has been followed by the purchase of a new steam hammer for the forge, and the placing of an order for a new turbo-driven air-compressor for the laboratory.

The general work of the year was carried out in accordance with the regular program. The classes taught, and numbers in attendance, are shown in the following tabular presentation:

INSTRUCTOR	COURSE	KIND OF WORK	Unit Hours	ATTENDANCE	
				1st Sem.	2nd Sem.
Durand	A	Lect. and Special	1	20	20
Harcourt . . .	1A, 1B	Lect. and Shop .	1-3	49	38
Liggett	3A, 3B	Lect. and Shop .	1-3	39	36
Stanley	5, 6A, 6B	Lect. and Shop .	1-3	70	64
Palmateer . .	7A, 7B, 8	Lect. and Shop .	1-3	25	48
Lesley	9	Lecture	2	.....	5
Cutter	11. El. Mach. Drawing	Drawing	2 or 3	48	52
Marx GH . . .	13A. El. M. Design . . .	Lecture	3	.....	17
Marx GH . . .	13B. El. M. Design . . .	Drawing	2	.....	17
Marx GH . . .	14. Mach. Design . . .	Lect. and Draw .	4	9	8
Marx GH . . .	15. Mach. Design . . .	Lect. and Draw .	5	2	.....
Marx and Cutter	16. Adv. Mach. Design	Lect. and Draw .	3	7	2
Eckart, Cross and Blee	21. Calibration and Use of Engineering Apparatus	Lect. and Lab . .	3	27	.....
Eckart, Cross and Blee	23. Testing of Pumping Machinery, Power Plant Auxiliaries, etc.	Lect. and Lab . .	3	.....	7
Eckart, Cross and Blee	22. Testing of Engines and Boilers	Lect. and Lab . .	3	22	20
Eckart, Cross and Blee	24. Abridged course in Experimental Eng	Lect. and Lab . .	3	.....	23
Eckart, Cross and Blee	25. Adv. Course in Exp. Eng	Lab	2	1	2
Durand	31. Heat Engines . . .	Lect. and Office Work	3	61	.....
Durand	33. Heat Engines . . .	Lect. and Office Work	3	.....	26
Durand	34. Thermodynamics	Lecture	1	.....	20
Durand	35. Power Plants . . .	Lecture	2	31	.....
Durand	36. Pumping Machinery	Lecture	2	.....	37
Durand	37. Seminary	Lecture	1	23	11
				434	453

WILLIAM FREDERICK DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING.

The staff of instruction in the department was made up as follows: Assistant Professor Samuel Barclay Charters, Jr., acting executive of the department; Instructors John Andrew Koontz, Eugene Garrison McCann and Axel Nielson. Professor H. J. Ryan was absent on sabbatical leave.

The courses of instruction given by the department during the year and the corresponding attendance in such courses are given in the following table:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Charters, Koontz, Nielsen.....	A Survey.....	1	38	33
Charters, Koontz, Nielsen.....	B. Survey.....	1	23	22
Charters, Koontz, McCann.....	1. Elements.....	4	46	15
Charters.....	2A. Energy.....	1	25	.....
Nielsen.....	2A. Energy.....	4	.....	24
Koontz, McCann.	2B. Energy.....	4	.....	25
Charters.....	3A1. Practice.....	4	15	.....
Charters.....	3A1. Practice.....	2	.....	15
Charters.....	3A2. Electric Railways.....	2	.....	30
Charters.....	3A3. Transmission of Intelli- gence.....	2	.....	16
Koontz, McCann.	3B1. Electrical Machinery...	4	15	.....
Nielsen.....	3B2. Electrical Machinery...	3	15	.....
McCann.....	4. Illumination.....	1	.....	25
Charters.....	10. Advanced Work.....	7-8	2	.....
			179	205

HARRIS JOSEPH RYAN,
Professor of Electrical Engineering.

MEDICINE.

The personnel of the department faculty for the year will be found listed in the reports of the various divisions. The departments of Chemistry, Physiology and Histology, and Zoology co-operated with this department in giving courses in the first three semesters of the medical curriculum. Instruction in medicine was given to three classes, the corporation of Cooper Medical College continuing its use of the medical buildings in order to complete the work of its final year, its last class graduating in May, 1912. Those clinics necessary for the teaching of

Stanford students were turned over to the Stanford Medical faculty by Cooper Medical College. Beginning July 1, 1912, Stanford began its complete control over all of the property formerly belonging to Cooper Medical College.

The three classes in the Medical Department numbered respectively, first year, 17; second year, 10; third year, 7; with 5 special workers registered in Anatomy. With September of the year 1912 the full quota of four classes in medicine will be taught for the first time in the Stanford Medical Department. The number of students has increased more rapidly than had been anticipated when the requirements were raised from the high school diploma standard of Cooper Medical College to three years of university work. It will necessarily require some years before many medical students upon the Pacific Coast will be prepared to give as much time in preparation for medicine as is required by Stanford University. A gradual growth in the department is to be anticipated and is most desirable since the present facilities will not permit of large classes.

The principal faculty changes have been the death of Dr. Henry Gibbons, Jr., and placing on the emeritus roll of Dr. J. O. Hirschfelder.

During the year arrangements were made with the Board of Health of the City and County of San Francisco for the appointment of members of the Stanford faculty to the Stanford division at the City and County Hospital. These appointments are as follows:

Dr. Emmet Rixford, Visiting Surgeon and Chief of the Stanford Surgical Service; Dr. Leo Eloesser, Visiting Surgeon; Dr. Sol Hyman, Visiting Surgeon; Dr. Harold Hill, Visiting Surgeon and Chief of the Medical Service; Dr. W. R. P. Clark, Visiting Physician Tuberculosis Group; Dr. R. B. Tupper, Assistant in Medicine; Dr. Wm. Ophüls, Chief, Pathology; Dr. E. C. Dickson, Assistant in Pathology; Dr. E. D. Downing, Assistant in Pathology; Dr. Walter Henry Gibbons, Gynecology; Dr. A. B. Spalding, Obstetrics; Dr. R. L. Rigdon, Genito-Urinary Surgeon; Dr. H. B. Graham, Otology, Laryngology and Rhinology; Dr. A. B. McKee, Ophthalmology; Dr. H. E. Alderson, Dermatology; Dr. L. Porter, Pediatrics; Dr. H. H. Yerington, Assistant in Pediatrics; Dr. W. F. Schaller, Neurology.

Arrangements were also completed with the San Francisco Society for the Study and Prevention of Tuberculosis so that a branch of the Medical Clinic under the charge of Dr. W. R. P. Clark is held in their building at 1547 Jackson Street.

The building for the Lane Medical Library has been constructed during the year directly across the street from the Clinical Laboratory building. With the removal of the books to the new library it became possible to begin the alterations required in order to provide adequate facilities for the outpatient service.

A complete curriculum for the four years in Medicine was adopted and arranged by the medical faculty during the year. Regulations were

also made for the required senior thesis and for the granting of advanced degrees by the Department of Medicine.

On July 1, 1912, the Lane Hospital came under full control of the Board of Trustees of Stanford University. Its management was vested in the Clinical Committee. Dr. George B. Somers has been made Physician Superintendent. Special arrangements have been made by the Board of Trustees for the conduct of the Hospital, which will permit it to continue along the lines so successfully followed by the Executive Committee of the Cooper Medical College. The combined care of private and clinical patients gives from fifty to sixty-five cases daily for clinical teaching and maintains the hospital. During the year arrangements were made with the San Francisco Maternity and with the Associated Charities for the Fruit and Flower Mission for the control of a certain proportion of their obstetrical cases.

During the year there has been a fairly wide-spread discussion as to the desirability and feasibility of uniting the medical departments of the two universities. A conference was held at the request of the President of the University of California and a tentative plan was presented by Stanford University with the aim of organizing one large institution for the teaching of medicine in San Francisco, but without result.

The Lane Medical Lectures were endowed with \$20,000 by the Directors of Cooper Medical College. The lecturer for the year 1913 will soon be selected by the faculty. The former friends and pupils of Dr. Henry Gibbons, Jr., have started in his memory a fund for the endowment of a portion of the Lane Medical Library, to be known as the "Henry Gibbons, Jr. Library of Obstetrics and Gynecology." Through a gift from Mr. C. A. Coffin, of New York, a research fund for the study of tropical diseases was established. Mrs. Emily B. Hopkins gave \$10,000 to the hospital for the endowment of a bed. The liberal gifts received by the hospital and the medical library indicate that the Medical Department may anticipate further additional financial assistance when it is once known that the gifts will serve the double purpose of providing help to the sick poor and of advancing medical education and medical science.

A statement from the individual divisions of the Medical Department, including Lane Hospital, follows. These reports do not include the departments of Physiology and Histology, of Chemistry and of Zoology, the courses given by these departments taken by medical students being given under the departmental reports.

ANATOMY.

During 1911-12 the work in Anatomy was done by Frank Ellsworth Blaisdell in San Francisco and by the undersigned in Stanford University. After the resignation of Dr. Ruskin M. Lhamon, the instructorship held by him was not filled during the year until the appointment of Dr. E. D.

Congdon of Cornell University. Dr. Lhamon's services in this institution were most faithful and he has since completed an investigation begun at Stanford on the atrio ventricular bundle, and also one on the anatomy of a human embryo.

In the following table a list of the courses, with the attendance in each, is given:

INSTRUCTOR	COURSE	Unit Hours	ATTENDANCE	
			1st Sem.	2nd Sem.
Blaisdell.....	Topographical and Applied Anatomy.....	3	.....	10
Blaisdell.....	Special Work.....	.....	.....	5
Meyer.....	Dissection.....	2-5	40	33
Meyer.....	Osteology.....	2-3	22	.....
Meyer.....	Topographical Anatomy.....	3	.....	4
Meyer.....	Conferences.....	3	.....	15-38*
			62	90

* The variation in attendance was due to the fact that only those having completed the dissections could profit by attendance at all conferences.

The space allotted to Anatomy at Stanford University has been extended considerably during the year and the material available both at Stanford and in San Francisco has been enlarged by the addition of numerous preparations made by the staff. The collection of this material has been an arduous task, but our students now have the opportunity to study an extensive and unique collection of anatomical material. The presence of an adequate teaching equipment and a technical assistant will now make it possible to direct attention more effectively to the productive activities of the division.

About one-half of the students taking Anatomy were outside the medical department, 4 medical students doing advanced work and 5 physicians being enrolled in the division in San Francisco. Approximately 50 per cent of the students in Anatomy were graduates and 20 per cent were women.

ARTHUR WILLIAM MEYER,
Professor of Anatomy.

BACTERIOLOGY.

During the year the teaching staff of the Division of Bacteriology consisted of Hans Zinsser, professor; and Arthur Meinhard, technical assistant.

The courses given during the first semester consisted of: 1. The laboratory and lecture course planned primarily for medical students (three lectures and five and one-half hours laboratory work per week,

4 units). 2. A two hour a week, two unit, lecture and demonstration course in the principles of infection, immunity, serum therapy and diagnosis. The laboratory course was attended by 13 first and second year medical students and 19 students from other departments, making a total of 32. There were 30 students registered in the course in Immunity. In addition, 2 special workers, one a physician, the other a graduate student, were doing special work in the laboratories of the division. During the second semester no set courses were given except a short course of six lectures and demonstrations on general bacteriological methods and the bacteriology of water supplies, given for the Department of Civil Engineering at the request of Professor C. D. Marx. During this semester, however, special courses were taken in the division laboratories by 9 students, all of whom had taken the preliminary courses in bacteriology, 2 of whom were taking the work as a minor for the degree of A. M. These major students in Chemistry worked upon and completed a piece of work on "Cataphorosis and Agglutination of Bacteria and Serum Proteids," carried out under the joint supervision of the Department of Chemistry and this division. The work of the other students was divided as follows: 2 made studies in the technique of serum reactions; 2 completed and published a study on Endo's Medium and the Paratyphoid Group; 1 worked on a special problem in water bacteriology; 1 on the cultivation of the Spirochaete; and 1 on a special problem of the cultivation of the tubercle bacillus.

The special work of the division staff during the past year concerned itself chiefly with the problems of bacterial precipitins, anaphylaxis, and rat leprosy.

During the past year the equipment of the division has been improved and a number of minor changes in the arrangement of the laboratory space carried out. In considering the arrangement of courses for future years, it seems that it would be best to limit attendance in Course I, the laboratory and lecture course given during the first semester, to medical students and to those who have had at least two years of university work, including Chemistry and General Biology, since the equipment and space of the laboratory at present is just about suitable for a maximum class of 25 students. During the past year there were admitted to the course a few students who had had one year only of laboratory work and the total number of 32 in this course resulted in considerable crowding.

HANS ZINSSER,
Professor of Bacteriology.

MEDICINE.

The teaching staff of this division consisted of Ray Lyman Wilbur, Joseph O. Hirschfelder, professors; William F. Cheney, Langley Porter, clinical professors; Harold Hill, Harry E. Alderson, associate clinical

professors; Thomas Addis, assistant professor; W. W. Boardman, W. R. P. Clark, E. C. Fleischner, Morton R. Gibbons, Florence M. Holsclaw, Walter F. Schaller, clinical instructors.

The following courses were offered:

INSTRUCTOR	COURSE	Hours per Week	ATTENDANCE	
			1st Sem.	2nd Sem.
Wilbur, Addis...	1. Physical Diagnosis.....	4½	.....	11
Wilbur.....	2. Physical Therapeutics.....	2	.....	11
Wilbur, Cheney, Addis.....	3. Medicine, Section Work in Clinics.....	11	7	.....
Wilbur, Cheney, Addis.....	4. Medicine, Section Work in Clinics.....	7	.....	7
Wilbur, Addis...	5. Experimental Medicine....	5	7	.....
Addis.....	6. Clinical Pathology.....	2½	7	7
Porter, Fleischner....	7. Pediatrics.....	2	.....	7
Hirschfelder....	8. Nervous Diseases.....	2	.....	7
			21	50

During the year Drs. Wilbur and Addis did considerable experimental work upon Urobilin. The outpatient clinic was conducted by Professors Wilbur and Addis and Assistants W. C. Alvarez, W. R. P. Clark, W. H. Banks, C. E. Hyde, G. D. Lyman, P. H. Luttrell, H. F. Adler. The students in medicine attended this outpatient clinic as well as the medical wards of Lane Hospital. The total number of cases seen in the outpatient medical service was 8269, distributed as follows: Outpatient clinic, 7392; tuberculosis clinic, 877; medical ward Lane Hospital, 209.

Since July 1, 1912, the men's medical service at Lane Hospital has been conducted by Dr. Wilbur, the women's medical service by Dr. Cheney, and the medical service at the City and County Hospital by Dr. Hill. Dr. Walter W. Boardman has been Actinographer at Lane Hospital.

Students in Pediatrics have worked in the outpatient children's clinic, in the children's ward of Lane Hospital and have also had the opportunity of studying contagious cases at the San Francisco Hospital for Contagious Diseases.

Instruction was given by Dr. J. O. Hirschfelder in the neurological clinic of Cooper Medical College to the junior students during the second semester of the year. Early in May the neurological clinic was placed in the hands of Stanford University under the supervision of the executive of the Division of Medicine, under the direct control of Dr. W. F. Schaller, and Dr. R. G. Van Nuys, assistant.

The dermatological clinic was placed in charge of Professor Alderson on the 1st of July and is being largely attended.

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Wilbur, Cheney, Addis.....	4. Medicine, Section Work in Clinics.....	7	7
Wilbur, Addis...	5. Experimental Medicine....	5	7
Addis.....	6. Clinical Pathology.....	2½	7	7
Porter, Fleischner....	7. Pediatrics.....	2	7
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The work in Psychiatry will begin in the year 1912-13, under the direction of Dr. Andrew W. Hoisholt.

RAY LYMAN WILBUR,
Professor of Medicine.

OBSTETRICS AND GYNECOLOGY.

In this division the work was carried on by Alfred Baker Spalding, professor; George B. Somers, clinical professor; and Walter H. Gibbons, clinical instructor.

The number of students registered in the division was 7. By arrangement with the San Francisco Maternity and Associated Charities an obstetrical service has been developed which has averaged over 35 confinements per month, about equally divided between hospital and home services. Junior students have acted as assistants in this department, each serving a period of two weeks, during which time they have witnessed the care of hospital patients and have carried out the same treatment with the home confinements under the supervision of Dr. Rude and the head outpatient obstetrical nurse, Miss Hill.

The plans are practically completed for the opening of a laboratory for the study and the preservation of pathological specimens from the gynecological operative service, and a nurse is in training for the position of technical assistant in this laboratory.

ALFRED BAKER SPALDING,
Professor of Obstetrics and Gynecology.

PATHOLOGY.

The personnel of the division was made up of William Ophüls, professor; Ernest C. Dickson, assistant professor.

The following table shows the courses given in the division during the year and the attendance of students:

INSTRUCTOR	COURSE	Hours per Week	ATTENDANCE	
			1st Sem.	2nd Sem.
Ophüls, Dickson.	1. General Pathology	5	.....	11
Ophüls, Dickson.	2. Pathological Histology	7½	.....	11
Ophüls, Dickson.	3. Special Pathology . . . . .	.....	7	7
				29

In addition the last class of Cooper Medical College (37 students) were instructed in Special Pathology and Applied Bacteriology.

Professor Ophüls continued his anatomical and experimental studies on chronic nephritis and made several reports in regard to this subject

to the Society of Experimental Biology and Medicine. A report was prepared on the occurrence of nephritis in a series of one thousand unselected necropsies and in conjunction with Dr. George W. McCoy of the United States Public Health Service on "Spontaneous Nephritis" in rats.

Professor Dickson continued his work on experimental nephritis and published a report on the experimental production of nephritis in animals by the use of uranium nitrate. He also prepared several shorter reports and demonstrations for various local medical societies.

Dr. S. L. Haas of the surgical department of Cooper Medical College continued his work on regeneration of bone.

Dr. J. O. Hirschfelder continued his studies on specific therapy in pneumonia and other infectious diseases.

Mr. L. Langstroth, a student of Cooper Medical College, did his thesis work on the hypophysis.

WILLIAM OPHÜLS,
Professor of Pathology.

PHARMACOLOGY.

The work in this division was conducted by Professor Albert Crawford, assisted by Mr. J. P. Crawford. Thirteen students were registered in the laboratory and lecture courses during the first semester and 12 during the second semester. In the second semester 2 students were at work at Stanford and the rest in San Francisco. This division of the work, thus rendered necessary, consumes a disproportionate amount of the professor's time.

During the year a paper was issued from this division upon "The Pressor Action of an American Mistletoe." Others will appear soon.

ALBERT CORNELIUS CRAWFORD,
Professor of Pharmacology.

SURGERY.

The personnel of the teaching staff of this division for the year has been as follows: Stanley Stillman, Emmet Rixford, professors; Adolph Barkan, professor emeritus; Rufus L. Rigdon, clinical professor (Genito-Urinary); Albert B. McKee, clinical professor (Ophthalmology); Edward C. Sewall, clinical professor (Otology, Laryngology, Rhinology); H. B. Graham, assistant clinical professor (Otology, Laryngology and Rhinology); James Eaves, instructor; and Leo Eloesser and Sol Hyman, clinical instructors.

The following table shows the courses given during the year:

INSTRUCTOR	COURSE	Hours per Week	ATTENDANCE	
			1st Sem.	2nd Sem.
Rixford	1. Fractures, dislocations, de- formities	2	.....	10
Stillman, Eaves .	2. General Surgery	2½	.....	10
Stillman, Rixford	3. Regional Surgery	3	7	7
Eaves	4. Special Surgical Pathology..	4	7	7
Stillman, Eaves .	5. Surgery, Clinics and Section work	4	7	7
			21	41

The surgical ward of the Lane Hospital afforded abundant opportunities for bedside teaching. Instruction was given in diagnosis and history taking, both there and in the surgical clinic in the outpatient department. The total number of cases in the surgical clinic treated during the year was 7717, of which 1812 were new cases. With the enlarged facilities in the clinical building for the coming year, the attendance at the clinics will undoubtedly be larger and the material handled to far greater advantage than in the past. The total number of patients maintained in the surgical ward of Lane Hospital was 303, most of which were operative cases, many of an exceedingly interesting nature.

The surgical work at the City and County Hospital, which came under the control of Stanford on July 1st, was in charge of Professor Emmet Rixford and Drs. Leo Eloesser and Sol Hyman.

In the Genito-Urinary Surgery, Dr. R. L. Rigdon was in charge of the outpatient dispensary. He was assisted by Chester H. Woolsey and Frederick M. Gedney. This clinic is large and, in conjunction with the clinical beds of Lane Hospital, furnished an adequate amount of material for teaching purposes.

In Ophthalmology the large outpatient eye clinic, which afforded abundant opportunity for clinical study, was under the direction of Dr. A. B. McKee, assisted by J. R. Burrows and A. S. Green.

The clinic of Otology, Laryngology and Rhinology was, in the absence of Dr. E. C. Sewall, conducted by Dr. H. B. Graham, assisted by H. Y. McNaught. It comes in the afternoon and was unusually well attended. A considerable number of clinical patients were taken care of in the Lane Hospital by the men in charge of this service.

STANLEY STILLMAN,
Professor of Surgery.

HYGIENE AND PUBLIC HEALTH.

The division of Hygiene and Public Health is under the charge of Dr. William F. Snow, clinical professor, but no courses have been given as the work comes in the senior year in Medicine.

LANE HOSPITAL.

The University took charge of the Hospital on July 1, 1912, and consequently this report covers only one month of University control.

By resolution of the Board of Trustees, every member of the faculty of the Medical Department who has actual duties to perform in Lane Hospital thereby becomes a member of the Hospital Staff. The committee in charge of Lane Hospital is composed of Dr. Ray L. Wilbur, chairman; Dr. George B. Somers, secretary; Dr. William Ophüls, Dr. A. B. Spalding and Dr. Stanley Stillman. Dr. George B. Somers also holds the position of Physician Superintendent, and Dr. H. R. Oliver that of Serologist. The clinical laboratory is in charge of Dr. Thomas Addis.

The Senior Internes doing work in the Hospital are Dr. James A. Cutting, in Medicine; Dr. Edmund Butler, in Surgery; and Dr. Lester Kimberlin, in Obstetrics and Gynecology. The Junior Internes are Drs. Lovell Langstroth, Warren McNeill, Adolph Schmidt, L. O. W. Moore and Leo Stanley.

For the month of July, the average number of patients treated per day was 122.3, divided as follows: Private, 54; Clinic, 55.6; Associated Charities, 4.1; Fruit and Flower, 3; Free, 5.6. The total number of patients admitted for the month was 386.

The present accommodations in the Hospital answer fairly well for the double purpose of providing for both private and clinic patients.

In the Training School Miss Frances Hollister Cooper is acting as superintendent of nurses, Miss Florence Sperry as assistant superintendent, Miss Hattie M. Visser as head nurse in operating room and Miss Lottie B. Sloan as dietitian. The number of nurses enrolled for July was 75, distributed as follows: Third year, 33; second year, 23; first year, 19. Of these nurses, 40 are employed on general duty, 5 in the diet school, 8 in the operating room, 5 in the clinics, 11 on night duty and 1 on special administrative duty.

In the operating department the number of operations on private patients for July was as follows: Major, 31; minor, 67; plaster casts, 6; cystoscopic examinations, 5; dressings, 1; treatments, 8. In the clinical department the number of operations were: Gynecological, 11; genito-urinary, 19; surgical, 26; eye, ear, nose and throat, 34.

In the department of Actinography, under charge of Dr. Walter W. Boardman, during the month of July, 189 patients were examined, 274 X-Ray plates made, and 22 photographs taken.

The outpatient obstetric service, in charge of Dr. A. B. Spalding,

with Miss Ann Hill as assistant, cared for 17 confinement cases. Applications were received from 37 patients, distributed as follows: Stanford service, 10; Fruit and Flower, 11; San Francisco Maternity, 16. This service is one of the most satisfactory in the Hospital except in respect to accommodations. It is certainly of enough importance to be worthy of being housed in a separate maternity building.

The outpatient department for the month of July showed an attendance of 1103 new patients and 3646 visits of old patients, making a total of 4749 visits. The large number of patients attending the clinics has been handled with some difficulty in the past, owing to lack of room, lack of conveniences and poor light. With the completion of the improvements now under way, all departments will be comfortably quartered and the work of caring for the sick poor much more satisfactorily accomplished.

The recently inaugurated History Room or Bureau of Records, where charts and records are carded and filed, is a source of much convenience in looking up histories. The work of filing is progressing satisfactorily and is nearly up to date.

GEORGE B. SOMERS,
Physician Superintendent.

THE MARINE BIOLOGICAL LABORATORY.

The 21st session of the Marine Biological Laboratory at Pacific Grove began on Wednesday, May 29th, and continued for six weeks, closing on July 10th.

The laboratory was in charge of Professor F. M. McFarland, aided by Mr. Howard F. West, assistant in General Zoology; Mrs. Olive H. McFarland, assistant in Embryology and Microscopical Technique; and by Mr. Frank J. Smiley as laboratory attendant.

Twenty-five students were in attendance, distributed as follows:

Course 1. General Marine Zoology, 15 students.

Course 2. Advanced Marine Zoology, 4 students.

Course 3. General Embryology, 6 students.

Each of the above courses consisted of a minimum of 7 hours per day laboratory work, with frequent lectures and collecting trips.

The following investigators made use of the facilities of the Laboratory at various times during the year:

Professor L. S. Kroeck, of the College of the Pacific, made collections of zoological material.

Dr. E. Stechow, of the Zoological Museum of the University of Munich, studied and collected certain Coelenterata of the region.

Mr. W. F. Thompson, a student in the Department of Zoology, worked upon the development of the Gephyrea..

In addition to the above named persons the laboratory has been used

at intervals during the year by different members of the biological departments of the University for the collection of material and for such studies as their time would permit. Class excursions to the laboratory, as in former years, have also been made at intervals. From the foregoing summary it may be seen that the laboratory plant is in practically continuous use throughout the year, and not merely during the six weeks of the summer session during which formal instruction is given.

FRANK M. MCFARLAND,
Instructor in Charge.

APPENDIX II

REPORTS OF COMMITTEES

STUDENT AFFAIRS.

The members of the committee for the year were: Dr. Orrin Leslie Elliott, Professor John Charles Lounsbury Fish, Associate Professors Ernest Whitney Martin, John Otterbein Snyder and Arthur Bridgman Clark; also Mrs. Evelyn Wight Allen (member in matters concerning women).

The troubles of the year have been few, the chief work of the committee has been constructive rather than repressive, still discipline has been imposed as follows:

NO. OF STUDENTS	OFFENSE	DISCIPLINE
1	Ungentlemanly conduct and lack of business integrity . .	Limited suspension made permanent.
1	Fraud in examination or in class work	Suspension for one semester.
1	Fraud in examination or in class work	Dropped from course concerned.
1	Fraud in examination or in class work	Dropped from course concerned. and 10 hours added to graduation requirements.
3	Rowdyish behavior on Campus at late hour	Suspension for two weeks.

In the last report it was indicated that the attitude of student leaders gave much hope for sympathetic cooperation on their part in accomplishing the duties delegated to this committee. The expectations for the present year have been fully realized. The Women's Conference for the women students and the Men's Conference for the men students, have during the year formally assumed the responsibility for student control and regulation of student activities. As applied to the women the plan has been in operation since November 22d, and as applied to the men, since March 30th.

The women of the University have been developing capacity for self-government in two conspicuous situations: First, in the student government of Roble Hall, where, under the able leadership of Miss Shirley

Hyatt, and of her successor, Mrs. E. J. Rolker, as Mistress of the Hall, an effective system of student control has been maintained; second, the "Pan Hellenic" organization, which has exercised certain control over the conduct of sorority women, especially in methods incident to obtaining new members, has handled difficult situations with success.

The Women's Conference is formed by the election of 15 representatives from department groups. These 15 elect from their own members a committee of 5, known as the "Women's Student Council," to exercise the authority of student government.

The activities of this student "Council" follow:

On February 8th it mailed to sorority houses a communication of disapproval of certain conduct connected with a sophomore picnic and requested that measures be taken to prevent similar occurrences in the future.

On February 22d it recommended to the Faculty Committee that a young woman be dropped from a course for cheating.

On March 13th the Council recommended as follows:

"The Women's Student Council recommends to the Student Affairs Committee that no more sororities be admitted into Stanford University while the 500 limit for women exists, for the following reasons:

"1. The admission of one more sorority would encourage the entrance of others into an already crowded field, 8 sororities among 500 being a large proportion.

"2. The admission of more sororities would tend to destroy the balance that now exists between fraternity and non-fraternity women.

"3. The Council is in favor of Sophomore Pledge Day and the entrance of a new sorority would tend to delay the accomplishment of that end."

This recommendation was adopted by the Faculty Committee.

On April 12th a joint meeting of the Men's and Women's Councils was held, at which the following resolution was adopted:

"That 'ragging' at any social function shall be considered a breach of good conduct subject to disciplinary action by these committees."

This resolution was sent to all houses in which students reside, together with the following communication:

"Attention is called to the University regulation that all functions must close at 12 o'clock. The interpretation of this rule includes after-play suppers, dances and receptions and after-dance suppers. Further attention is called to the fact that this and other University regulations hold during mid-term and Christmas vacations."

On May 6th, to secure a uniform closing hour, it passed the following:

"All houses in which women students reside must be closed by 10:30 P. M. every night."

The report of the Women's Council to this Committee closes as follows:

"The present Council on retiring wishes to express its faith in the ultimate success of Student Government. There are still a great many details to be worked out and many problems will arise to be settled in the future, but if the cooperation of the women continues to be as sincere and helpful as has been the case in the past semester, we feel that every difficulty can be overcome."

Misses Linda Bell, Dorothy Marx, Ruth Sampson, Gertrude Workman and Nina Moise (Chairman), constituted the Women's Student Council.

In April this Committee stated conditions under which it felt willing to delegate its functions of government of the men in the following terms:

"The understanding in accordance with which the Committee on Student Affairs is ready to sanction the assumption of responsibility for the government of the men of the University by the University Conference, as at present organized, is the same as in the case of women, and is as follows:

"1. The standards of conduct and regulations governing students adopted by the University and exercised through its Committee on Student Affairs, shall remain in force and be maintained by the University Conference.

"2. The University Conference is authorized to make such other rules, not inconsistent with University regulations, as it may deem wise and expedient.

"3. Cases involving discipline shall be considered by the Men's Student Council and recommendations made to the Committee on Student Affairs.

"4. At the end of each semester a written report of the activities of the University Conference shall be filed with the Committee on Student Affairs.

"The authority hereby delegated may be withdrawn at any time, when the interests of the University seem to require such action.

"It should be noted that the matter of student conduct and the maintenance of University standards is intrusted to the Committee on Student Affairs both by the Board of Trustees and by the Faculty of the University, and that there is no way in which the Committee can rid itself of this final responsibility. All action involving University discipline must necessarily be confirmed by the Committee.

"If the University Conference shall decide to assume responsibility for the government of the men of the University, it is the purpose of the Committee on Student Affairs to delegate its functions to the Conference to the fullest extent possible and to provide full scope for the exercise of student control. So long as University standards are maintained, so long as the men shall actually handle the situation, the Committee expects to sustain the Conference and to approve its findings. Beyond this the Committee has no authority to go."

The whole matter was amply discussed by the men, both in general assembly and in print, and the matter of assuming student control or not assuming it was finally decided at an election held on March 20th, at which 536 voted for and 75 against. The Men's Student Council forthwith assumed control with the following members: Kenneth Dole, chairman; Maurice T. Dooling, Karl L. Schaupp, Lester D. Summerfield and Richard Henry Seward; Student Adviser Almon E. Roth was also present at all meetings.

This student committee has frequently during the past four years been called in council by the faculty committee and has assisted in arriving at decisions in matters of policy and measures of discipline, so that the assumption of full authority on its part was accepting duties with which its members were somewhat familiar.

On April 12th a student was declared ineligible for participation in student activities for the remainder of the year, because he had violated the closing rule.

A fraternity reported to the Student Council an independent action on its part by which it has caused 3 of its members to withdraw from the University for a considerable period, as a penalty for the violation of a University regulation.

This action was taken in the belief that support of the principle of student control required the assumption of its responsibilities by individual groups of students.

The instances above given of the operation of "Student Control" make comment unnecessary. So long as the students choose as their representatives men and women of the character of those who have constituted the two student councils of this year the older University authorities will have no cause for anxiety.

ARTHUR BRIDGMAN CLARK,
Chairman.

DELINQUENT SCHOLARSHIP.

The records of the Committee action in 1911-12 may be classified as follows:

Withdrawals.....	45
First Failures.....	112
Probation other than First Failure.....	61

Of the 45 withdrawals on account of deficiencies in scholarship, 21 had received "first failure" in the preceding semester, 11 some earlier semester, while 13 were "first failures" adjudged by the Committee to be "unusually serious" and so denied a second trial.

Of the total of 157 failures for the year, 143 were men and 14 women;

or, stated in percentage of the number of each group registered in the University, 11 per cent of the men failed and 2.5 per cent of the women.

In the following table, men and women are grouped separately by residence, the percentage of failures being given for each group:

RESIDENCE	MEN	
	TOTAL NUMBER	PER CENT OF FAILURES
Palo Alto and Mayfield.....	290	14
Encina Hall.....	303	6
Private Residence on Campus.....	100	9
"Commuters" (from San Jose, etc.).....	100	9
Fraternities.....	416	15
	WOMEN	
	TOTAL NUMBER	PER CENT OF FAILURES
Palo Alto and Mayfield.....	100	3
Roble Hall.....	108	2
Madrono Hall and private residence on Campus.....	135	3.7
"Commuters" (from San Jose, etc.).....	30	0
Sororities.....	192	2

Comparing this table with the similar one published in the President's Report for 1911, an interesting correspondence is observed. In both years the most favorable residence for men, so far as their scholarship is concerned, is Encina Hall, and least favorable is the fraternities. Among the women no failures are recorded among those who live away from the University and pass back and forth daily on the trains. Roble Hall and the sororities are equal in their reaction on scholarship, and the least favorable conditions would seem to be found in private residences on the campus and in the neighboring towns of Palo Alto and Mayfield.

CHARLES HENRY GILBERT,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR.

The number of students in attendance in 1911-12 was 1774. Of these, 1203 had previously been in attendance, 571 were new students. As compared with 1910-11, there was an increase in old students of 26 and a decrease in new students of 10, making total increase of 16.

STATISTICS OF REGISTRATION, 1907-1912.

	1907-08	1908-09	1909-10	1910-11	1911-12
Old students.....	1164	1133	1135	1177	1203
New students.....	574	534	609	581	571
	<hr/> 1738	<hr/> 1667	<hr/> 1744	<hr/> 1758	<hr/> 1774
Percentage of old students returning.....	69.7	65.1	68	67	68.4
From California.....	1438	1319	1364	1371	1377
From other States.....	300	348	380	387	397
Percentage outside California	17.2	20.8	21.8	22	22.4

AVERAGE AGE OF MATRICULATION.

Graduates†.....	28.7	28.3	28.2	29.7	25.6
Advanced standing.....	22.8	22.3	22.5	21.6	22.4
Freshmen.....	20.4	19.9	20.2	21.5	20.2
Specials.....	25.1	24	23.7	26.5	23.2

† From other colleges.

AGE OF FRESHMEN AT MATRICULATION.

Under 17.....	4	4	5	4	8
17-18.....	41	33	29	35	41
18-19.....	104	89	104	108	104
19-20.....	123	111	117	122	94
Over 20.....	135	143	145	123	128
	<hr/> 407	<hr/> 380	<hr/> 400	<hr/> 392	<hr/> 375

STATISTICS OF ENTERING CLASS, 1911-12.

	NUMBER ENTERING.	NUMBER RETURNING 1911-12.	FAILED IN SCHOLARSHIP.
From Colleges—			
Graduates	33	7 (21%)	2 (6%)
With advanced standing	109	71 (65%)	14 (13%)
Without advanced standing	7	6 (86%)	0
	<hr/> 149	<hr/> 84 (56%)	<hr/> 16 (10.7%)
From Normal Schools	10	6 (60%)	2 (20%)
From Preparatory Schools—			
On recommendation (wholly or mainly):			
In full undergraduate standing	361	283 (78%)	31 (8.6%)
In partial standing	5	5 (100%)	1 (20%)
Wholly on examination:			
In full standing	1	1 (100%)	
In partial standing	0	0	
	<hr/> 367	<hr/> 289	<hr/> 32
As special students	45	26 (57.7%)	9 (20%)
	<hr/> 571	<hr/> 405 (71%)	<hr/> 59 (10%)

COMPARATIVE NUMBERS AT MATRICULATION.

	1910-11	1911-12
From Colleges—		
Graduates	48	33
With advanced standing	101	109
Without advanced standing	18	7
	<hr/> 167	<hr/> 149
From Normal Schools	19	10
From Preparatory Schools—		
On recommendation (wholly or mainly):		
In full undergraduate standing	349	361
In partial standing	5	5
Wholly on examination:		
In full standing	2	1
In partial standing	0	0
	<hr/> 356	<hr/> 367
As special students	39	45
	<hr/> 581	<hr/> 571
Total		

CLASSIFICATION BY MAJOR SUBJECTS.

	1908-09	1909-10	1910-11	1911-12
Greek.....	15	11	4	10
Latin.....	45	40	42	38
Germanic Languages.....	81	94	77	78
Romanic Languages.....	36	40	35	35
English.....	165	149	153	139
Philosophy.....	6	5	5	5
Psychology.....	3	3	6	6
Education.....	37	39	57	52
History.....	139	152	185	188
Economics.....	144	157	149	136
Law.....	37	86	124	113
Pre-Legal.....	211	189	188	177
Graphic Arts.....	33	47	51	53
Mathematics.....	28	22	22	24
Applied Mathematics.....	...	...	1	1
Physics.....	11	13	13	15
Chemistry.....	79	79	66	82
Botany.....	31	29	25	29
Physiology.....	55	70	61	76
Anatomy.....	...	...	2	4
Bacteriology.....	...	...	2	1
Zoology.....	30	24	19	14
Entomology.....	9	13	16	18
Geology and Mining.....	127	100	102	98
Civil Engineering.....	169	196	182	179
Mechanical Engineering.....	63	69	51	58
Electrical Engineering.....	113	108	109	120
Medicine.....	...	15†	17††	35†††
	<hr/> 1667	<hr/> 1744	<hr/> 1758	<hr/> 1784

† Including 6 also counted under Physiology.

†† Including 6 also counted under Physiology.

††† Including 9 also counted under Physiology; 1 under Chemistry.

DISTRIBUTION OF ENTERING CLASS, 1911-1912.

FROM COLLEGES, ETC.

Albany (Ore.) College.....	2	Throop Polytechnic College...	2
Augustana College	2	University of California.....	13
Beloit College	1	Chicago	4
Brennan College	1	Cincinnati	1
Buchtel College	1	Colorado	3
Butler College	1	Denver	2
Carleton College	1	Illinois	2
Clark College	1	Indiana	2
Clark University	1	Iowa	1
Colorado Agricultural College.	1	Melbourne	1
Colorado College	1	Michigan	4
Columbia University	1	Minnesota	1
Cornell University	2	Missouri	2
Depauw University	2	Nebraska	2
Hamilton College	1	Nevada	2
Hiram College	1	New Mexico ...	1
Huron College	1	Oregon	1
Illinois Women's College.....	1	Pacific	3
Iowa State College.....	1	Pennsylvania ...	1
Iowa Wesleyan	1	So. California... 13	
Kansas University.....	1	Tennessee	1
Lake Forest College.....	2	Texas	2
Massachusetts Inst. of Tech...	1	Utah	3
Mills College	3	Washington	1
Northwestern University	2	West Virginia ...	1
Occidental College	5	Wisconsin	2
Ohio State University	1	Ursinus College	1
Peabody College	1	Waseda University	1
Pennsylvania State College....	1	Washburn College	1
Pomona College	12	Washington State College.....	1
Purdue University	1	Wellesley College	2
Rockford College	1	Western Reserve College.....	1
St. Mary's College.....	3	Western Union College.....	1
Santa Clara College.....	2	Whitman College	1
Smith College	5	Willamette University	2
Swarthmore College	2	Yale University	2

FROM NORMAL SCHOOLS.

Chico State Normal.....	1	Nebraska State Normal.....	1
Jamaica (N. Y.) State Normal	1	San Diego State Normal.....	1
Los Angeles State Normal....	2	San Jose State Normal.....	5

FROM PREPARATORY SCHOOLS.

Academy of Idaho.....	1	El Centro H. S.	1
Alhambra H. S.	1	Elmira Free Academy	1
Allen Preparatory School.....	1	Escondido H. S.	3
Allen School (Mass.).....	1	Eureka H. S.	3
All Hallow College.....	1	Everett (Wash.) H. S.	2
Astoria (Ore.) H. S.	2	Fort Wayne (Ind.) H. S.	1
Bakerfield H. S.	1	Fowler H. S.	1
Bandon (Ore.) H. S.	1	Fremont H. S.	1
Barnard Preparatory School..	1	Fruita H. S.	1
Belmont School	2	Fullerton H. S.	1
Beloit (Kans.) H. S.	1	Girls' Collegiate School.....	2
Berkeley H. S.	2	Girls' High School (S. F.)....	1
Berkeley Preparatory	1	Glenwood Springs (Colo.) H. S.	1
Boise (Ida.) H. S.	2	Grand Junction (Colo.) H. S..	1
Boone's University School....	1	Hamlin School	2
Branham & Hughes School...	1	Hanford H. S.	2
Brighton (Mass.) H. S.	1	Harker School	3
Brisbane Technical College...	1	Harvard School	2
California Sch. Mech. Arts...	2	Heber Collegiate Institute.....	1
Campbell H. S.	7	Hill Military Academy.....	1
Carthage (Mo.) H. S.	1	Hitchcock Military Academy..	1
Case School of Appl. Science.	1	Homerian Hall	1
Castilleja School	6	Hoquiam (Wash.) H. S.	1
Castle Heights (Tenn.).....	2	Huntington Beach H. S.	2
Centerville H. S.	1	Huntington Hall	2
Chadron (Nebr.) H. S.	1	Huron (S. D.) H. S.	1
Chico H. S.	3	Kansas City H. S.	1
Citrus H. S.	1	Kern Co. H. S.	2
Clear Lake Union H. S.....	1	Lassen County H. S.	1
Cleburn (Tex.) H. S.	1	Lehi (Utah) H. S.	1
Cogswell Polytechnic H. S....	1	Lewiston (Ida.) H. S.	1
Colorado School Mines.....	2	Lick H. S. (S. F.).....	1
Colton H. S.	1	Lincoln H. S. (Portland).....	1
Compton H. S.	1	Long Beach H. S.....	4
Connersville (Ind.) H. S.	1	Los Angeles H. S.....	19
Corona H. S.	2	Los Banos H. S.....	1
Cottage Grove (Ore.) H. S. ..	1	Los Gatos H. S.....	2
Covina H. S.	1	Lowell H. S. (S. F.).....	12
Cranford (N. J.) H. S.	1	Lyceum (S. F.).....	1
Dayton (Ohio) H. S.	2	McKinley H. S.	1
Des Moines (Ia.) H. S.	1	Manor School	1
Duluth (Minn.) H. S.	1	Manzanita Hall	17
El Cajon H. S.	2	Marlborough School	1

Marysville H. S.	2	San Bernardino H. S.	1
Mendocino H. S.	2	San Diego H. S.	2
Merced Co. H. S.	1	San Jose H. S.	16
Mission H. S. (S. F.).....	1	San Mateo H. S.	4
Missouri School Mines.....	1	Santa Barbara H. S.	7
Monterey H. S.....	3	Santa Clara H. S.	3
Morgan Park Academy.....	1	Santa Cruz H. S.	2
Morristown (Ia.) H. S.	1	Santa Paula H. S.	1
Mt. Tamalpais Mil. Acad.....	1	Santa Rosa H. S.	1
Mountain View H. S.....	7	School of Engineers (Mex.)..	1
Muscatine (Ia.) H. S.	1	Seattle H. S.	1
North Platte (Nebr.) H. S....	1	Secünder School (Zurich)....	1
Oahu College Prep.....	3	Selma H. S.	1
Oakhurst School (Cincinnati)	1	Snohomish (Wash.) H. S.	1
Oakland H. S.	1	Smith Academy (St. Louis)...	1
Oakdale H. S.	2	Spokane (Wash.) H. S.	7
Occidental Academy	1	Stanton (Nebr.) H. S.	1
Onawa (Ia.) H. S.	1	Stockton H. S.	4
Oregon (Ill.) H. S.	1	Tacoma (Wash.) H. S.	4
Pacific Grove H. S.	2	Throop Polytechnic Inst.	7
Palo Alto H. S.	32	Trinity School (S. F.).....	2
Pasadena H. S.	10	Tudor Hall	1
Paso Robles H. S.	1	Tulare H. S.	1
Phillips Andover Academy....	1	Tuolumne H. S.	1
Phoenix (Ariz.) H. S.	1	Ukiah H. S.	2
Polytechnic H. S. (Los A.)... 16		University of Nevada H. S....	1
Polytechnic H. S. (S. F.).....	2	University of Pacific Acad....	1
Pomona H. S.	1	Vallejo H. S.	1
Porterville H. S.	2	Vincennes (Ind.) H. S.	1
Redlands H. S.	5	Virginia Polytechnic Inst.....	1
Redwood H. S.	1	Visalia H. S.	2
Richmond (Ind.) H. S.	1	Wakefield H. S.	1
Riverside H. S.	3	Walla Walla H. S.	1
Riverside (Ill.) H. S.	1	Wallace (Ida.) H. S.	1
Roswell (N. M.) H. S.	1	Washburn School	1
Rowland Hall	1	Watsonville H. S.	1
Sacramento H. S.	3	Wayland Academy	1
St. Helena H. S.	1	Webb Academy	1
St. Luke's School	2	Westtown School (Pa.).....	1
St. Matthew's School	4	White's Preparatory School... 2	
St. Patrick's Seminary	1	Whitis School (Texas).....	1
Salinas H. S.	1	Willits H. S.	1
Salt Lake (Utah) H. S.	4	Woodland H. S.	3
San Benito H. S.	1		

REGISTRATION OF STUDIES.

Fifteen units constitute a normal semester's work. The following was the actual registration during 1911-12:

		NUMBER OF STUDENTS	
		FIRST SEMESTER	SECOND SEMESTER
For	1 unit.....	0	0
	2	0	0
	3	0	1
	4	1	1
	5	0	2
	6	0	1
	7	1	2
	8	1	2
	9	3	4
	10	15	11
	11	8	18
	12	22	36
	13	160	163
	14	224	180
	15	498	486
	16	280	235
	17	147	143
	18	112	112
	19	1	3

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1911-12.

	FIRST SEMESTER	SECOND SEMESTER
Total number of petitions acted upon.....	891	926
To change registration by dropping subjects, or taking up new subjects, or both.....	694	686
To change major subject.....	60	42
To register for fewer than 13 units.....	†57	††83
To register for more than 18 units.....	3	16
For leave of absence.....	45	63
Miscellaneous.....	55	77

† Of these 57 petitioning for fewer than 13 units, 33 are included in change of registration.

†† Of these 83 petitioning for fewer than 13 units, 41 are included in change of registration.

STATISTICS OF GRADUATION.

The total number of degrees conferred in 1911-12 was 348, distributed as follows:

	Ph.	D.	J. D.	A. M.	Engr.	LL.B.	A. B.
Greek.....	1
Latin.....	4	..	..	7
Germanic Languages.....	1	..	..	3	..	..	16
Romanic Languages.....	6
English.....	6	..	..	25
English Philology.....	3	..	..	..
Philosophy.....	1
Psychology.....	1	..	..	..	..	..	1
Education.....	5	..	..	10
History.....	5	..	..	31
Economics.....	1	..	..	20
Law.....	..	15	..	..	..	1	36
Graphic Art.....	7
Mathematics.....	3
Physics.....	2	..	..	2
Chemistry.....	7	1	..	13
Botany.....	1	..	..	2	..	..	5
Physiology.....	13
Zoology.....	1	..	..	..	..	..	4
Entomology.....	1	..	..	3
Geology and Mining.....	3	2	..	18
Civil Engineering.....	3	..	35
Mechanical Engineering.....	1	..	5
Electrical Engineering.....	2	..	15
	4	15	42	9	1	277	

In the case of the 277 students who received the degree of Bachelor of Arts, the period of residence was as follows:

2 semesters.....	21
3 semesters.....	10
4 semesters.....	18
5 semesters.....	7
6 semesters.....	26
7 semesters.....	19
8 semesters.....	121
9 semesters.....	36
10 semesters.....	11
11 semesters.....	5
12 semesters.....	2
13 semesters.....	1

277

The 101 students who took their A. B. in less than 4 years were enabled to do this as follows ("Extra courses" meaning courses in excess of the normal 15 units per semester):

Through advanced credit from other institutions.....	54
Through advanced credit supplemented by extra courses.....	25
Through advanced credit supplemented by summer work.....	10
Through advanced credit supplemented by extra courses and summer work.....	3
Through summer work and extra courses.....	3
Through credit for extra entrance units and extra courses.....	2
Through credit for extra entrance units and extra courses and advanced credit.....	2
Through extra entrance units and summer work.....	2
	<hr/>
	101

THE FACULTY.

IMPROVEMENT OF SCHOLARSHIP.

A recommendation from the Executive Committee, proposing a reduction in the number of one and two unit courses and an increase of four and five unit courses in the University, was taken up as unfinished business at a special meeting of the Academic Council held in September, 1911. Statistics were presented which showed that, under the existing schedule arrangement, the average student must take from five to nine different courses in order to complete his study list. It was argued that this system discourages scholarship, the student's attention being divided among so many subjects that he has no time to make his study bear fruit, and that any course which requires less than one-fifth of a student's study time is a mistake. What constitutes intellectual discipline is the work that the student does for himself, to which he devotes a considerable amount of time. On the other hand, it was pointed out that, in certain subjects at least, a very important result is that which comes directly from the time element, and a permanent impression can be made only by spreading the work over a considerable period. The following statement of policy was adopted by the Council:

"WHEREAS, the fact that a large proportion of students carry too many courses simultaneously is a serious obstacle to efficient work by students and to the maintenance of high scholastic standards by instructors, and

"WHEREAS, this condition is not the fault of students, but is necessitated by the widely prevalent practice of giving courses with small credit-value, therefore be it

"RESOLVED, that the several departments of the University are urgently requested to arrange their work, so far as is practicable, in accordance with the following principles:

"(1) Undergraduate courses in general should have a credit value of not less than 3 units per semester;

"(2) Courses open to first-year students in general should have a credit value of 4 or 5 units per semester."

DISCONTINUANCE OF AUGUST ENTRANCE EXAMINATIONS.

At the meeting of the Council, held September 21, 1911, it was voted, on the recommendation of the Committee on Admission and of the Executive Committee, to omit in future the August entrance examinations and to make the June examinations of the College Entrance Examination Board the only entrance examinations of the University. The reasons which led to this action are summarized in the report submitted to the Council by the Committee on Admission and Advanced Standing, through the Executive Committee and printed in Appendix IV.

GRADUATE STUDY AND ADVANCED DEGREES.

The enlarged Committee on Graduate Study submitted a careful revision of the requirements for advanced degrees which, after some modification, was adopted by the Council January 29, 1912. The changes were mainly regarding minor details, but a distinct modification was made in the requirements for the Degree of Engineer by the insertion of a provision waiving, in part, the residence requirement, in order to permit the carrying on of advanced work with equipment or under conditions not available at the University. The revised requirements also attempted to emphasize more sharply the distinction between undergraduate work and work for the Master's Degree.

In connection with the work of the enlarged Committee on Graduate Study, the Trustees were asked to amend the Articles of Organization by transferring the function of passing on applications for admission to candidacy for advanced degrees from the Committee on Graduation to the Committee on Graduate Study, and this change was duly accomplished.

On recommendation of the Committee on Graduate Study it was also voted to begin the publication of a Graduate Bulletin, setting forth the conditions and facilities for graduate study in the University, but not duplicating the listing of courses given in the regular Announcement of Courses. The first Bulletin of this series was issued in May.

DEGREE OF BACHELOR OF LAWS.

On the recommendation of the Law Department the degree of LL. B., which had been dropped in 1905, upon the establishment of the J. D. degree, was restored. The old LL. B. degree had been given for 3 straight

years in law without other academic studies, and therefore represented considerably less actual accomplishment than the degree of A. B. The new LL. B. is to include 2 years of general college work in addition to the 3 years of Law. The degree of J. D. will still be given to those who complete the 3 years in law and who have previously received the degree of A. B. The degree of LL. B. will thus represent five years' work without the intervening degree of A. B.; the degree of J. D. will represent 6 years' work and will include the degree of A. B.

MINORITY REPORT OF COMMITTEE OF TEN.

The minority report of the Committee of Ten, appointed in 1910 to consider "the entire matter of University policy," was taken up as unfinished business at special meetings of the Council, held October 13th and October 20th, 1911. The minority report dealt with existing conditions in the educational system as a whole and the admitted failure of the schools, from primary grades to the college, adequately to meet the educational needs of the people. Two recommendations were made: First, that the Academic Council initiate a movement looking to a State Commission which should study and report upon the educational system of the state; second, the appointment of a Committee of the Council, whose functions should be that of a clearing house of ideas and methods, and which would act in an advisory capacity to the various departments.

The recommendations of the minority report were adopted after amendment, the first taking the form of a memorial to the Governor of the State. However, objections to this procedure were interposed by the Board of Trustees in a resolution adopted February 23, 1912. A recommendation of the Executive Committee, to which the Trustees' resolution had been referred, was debated by the Council May 17, 1912, and referred back to the Executive Committee for further consideration.

The second recommendation was passed in the following form:

"(1) That each department develop means for the individual training of its students so that it may establish an individual relation with each student as he enters it; that a detailed study—not a single hurried consultation—be made with him of his previous studies and training, his purposes in coming to college, his plans in life, etc., and that his individual course be then arranged, semester by semester, to co-ordinate these, to unify them, to prepare him for taking up, at the end of two years of such personal guidance, his special work in whatever field it may be.

"(2) That during these two years this personal work be so conducted, and such standards of application and accomplishment adhered to, that only those students who genuinely respond shall remain in the University to the end of the period.

"(3) That, in order to aid the department in this innovation, a committee be appointed consisting of one member from each de-

partment (each selected by his own department), which shall be called 'The Committee on Individual Training and Vocational Guidance.' The function of this Committee to be that of a clearing house of ideas and methods—developed here or elsewhere—bearing on the solution of this problem, and passing these on, in an advisory capacity solely, to the various departments. The departments then individually to apply those methods and try those plans best suited to their own peculiar purposes and personnel."

POWERS OF EXECUTIVE COMMITTEE AND ACADEMIC COUNCIL.

A question as to the meaning of the Articles of Organization with relation to the powers of the Executive Committee and Academic Council over the standing administrative committees of the Council, which had been under discussion in the Executive Committee for a period of some months, was brought to the attention of the Council in January, 1912, in a resolution affirming certain powers laid down in the Articles of Organization and defining their meaning. This interpretation was approved by the Academic Council January 12, 1912. An individual appeal being taken to the Board of Trustees, the Board of its own motion, and after informal conference with a sub-committee of the Executive Committee, recast the Articles of Organization in respect to the issues which had been raised. The changes accomplished by the Board are indicated below:

Chapter IV, Section 5.

Old Form: "It (the Academic Council) shall have power to instruct the standing committees as to general policy or general regulations. Appeals from the action of the Academic Committees in special or individual cases, under such regulations or policy, shall be to the Executive Committee of the Council. Appeals from the action of the Administrative Committees in special or individual cases shall be to the President."

Revised Form: "All committees, however appointed, are Committees of the Academic Council and as such may be called on by the Council for reports and may be instructed by the Council in their duties and policy."

Chapter VI, Section 3 (b) 1, d and e.

Old Form: "(d) The other committees of the Council shall submit any change of policy or general regulations or any new measures or general regulations to the Executive Committee for approval.

"(e) The Executive Committee shall formulate the duties and control the policy of the several committees."

Revised Form: "(d) The Academic Council may empower its Executive Committee to act in its place either *ad interim* or in emergencies, and may authorize it to call for reports from all committees in order to prepare matter to lay before the Council.

“(e) The Executive Committee shall not put into effect any new policy until adopted by the Council.”

Chapter VI, Section 4.

“All communications between the Council or its Executive Committee and the Standing Administrative Committees shall pass through the President’s office.”

Chapter VI, Section 5, Appeals.

“(a) Appeals from the action of the Academic Committees in special or individual cases shall be to the Executive Committee, and its decision shall be final.

“(b) Appeals from the action of the Administrative Committees in special or individual cases shall be to the President, and his decision shall be final.”

“(c) In case an Administrative Committee doubts the expediency of any instruction received from the Council, it may enter a protest stating its reasons, and thereupon the Council shall vote a second time upon its said instruction, and if a majority vote of all the active members belonging to the Council, including those present and those in residence, whether present or absent, shall be cast in its favor, the instructions shall remain in force; but if the President of the University cannot concur with the Academic Council in any resolution or legislation, he may submit to the Board of Trustees his views as to the matter with the report of the action of the Council.”

UNIVERSITY CREDIT FOR SPECIAL WORK.

The University regulation governing credit for special courses not regularly taken in the University nor in other approved universities or schools, was modified so as to make more definite the provision regarding such work and to authorize the various departments to sanction outside work under certain restrictions and safeguards. The regulation as revised is as follows:

“Matriculated students on leave of absence may take work in other universities, usually without any restriction other than those imposed by the institution in question. But work undertaken in any Summer Session may be subject to special regulations, and must be approved by the major department and by the department in which the work is to be taken.

“Work of a special character taken outside of regularly scheduled classes, *in absentia* or during summer vacations, may be credited under the following conditions: (1) The work must be acceptable as part of the major requirements for the A. B. degree in the department by which it is authorized, must be authorized by the department faculty concerned, as well as by the instructor under whom it is to be carried on, must be given adequate supervision and direction and subjected to the same tests

as in the case of regularly scheduled courses, and must be duly registered with the approval of the Committee on Admission and Advanced Standing; if not registered in advance, a fee of two dollars will be charged for late registration; (2) a fee to the University of two dollars per semester unit must be paid before credit is entered.

"The last semester's work of every candidate for a degree must be taken in this University; but in special cases, students who have obtained at least ninety units in resident work and who have completed all major department requirements, may be exempted from this regulation and permitted to register for special courses under the provisions noted above."

METHOD OF VOTING.

At the meeting of the Council, held May 1, 1912, the system of voting in elections to the Advisory Board, Executive Committee, and Committee on Graduate Study was revised, and the so-called Grand Junction plan of a preferential ballot after the first or nominating ballot was substituted for the old arrangement.

APPENDIX IV

DISCONTINUANCE OF AUGUST ENTRANCE EXAMINATIONS.

A report from the Committee on Admission and Advanced Standing, recommending the discontinuance of the August entrance examination given by the University, was approved by the Executive Committee September 21, 1911, and adopted by the Academic Council September 29, 1911.

A recommendation to this same effect was made in February, 1907, and approved by the Executive Committee, but was not sustained by the Council.

Statistics presented in 1907 showed that in the August preceding 145 candidates for admission had taken one or more entrance examinations, 85 of these entered the University, and in the case of 30 entrance had depended on passing one or more examinations. Five entered wholly on examination.

The Committee's report at that time presented the history of the Stanford plan of admission and pointed out that the University had approximated closer and closer its theoretical policy of regarding the successful completion of a regular four years high school course of study as full and adequate preparation for undergraduate standing. The relation between the secondary school and the University had become so mutual and well understood that, in the judgment of the Committee, the school could be trusted to discriminate between those graduates who were fitted to take up college work and those not so fitted. In general, any not so fitted, and yet desiring to enter the University, could make up deficiencies most expeditiously, and most economically, by further study in the school. The demand for examinations given by the University was slight and scattered, and as a result there was no very fixed and definite standard of admission through examination. Two classes of students were taking examinations: (1) Graduates of high schools who had fallen short of the school standard in a small number of subjects; (2) non-graduates who were trying a short cut and omitting one or two years of the high school course. Candidates of the first class usually came up for examination without additional preparation of a serious kind and took a chance in much the same way that they would approach any other scheme of lottery. Whether they passed or failed the University had very little more light on their capacity to do college work than was or could have

been given by the high school without the bother, expense, and, in many cases, keen disappointment of the candidates concerned. In other words, the question of admission on the high school record ought to be definitely settled one way or the other at the time of graduation. If unfavorable to admission, the further necessary preparation had better be supervised and tested by the secondary school, which is in the business, so to speak, and to which, in the agreed division of labor between the secondary school and the University, has been intrusted this stage of the educational process.

In the great majority of cases this is actually the fact at the present time. The school exercises discretion in the matter of recommendation, and, by express permission and invitation of the University, recommends candidates who fall below the fixed standard in one or more subjects, but whose general high record and intellectual qualities give promise of success in college. Since we are thus fully committed to the recommending system the August entrance examinations are, in these cases, simply a temptation, on the one hand, to high school principals to shift their just responsibility upon the University, and, on the other, to unprepared candidates to take a chance shot without further serious preparation. If it be understood that the high school graduate is not to be received by the University until the school is ready to certify to his admission, it will deepen the sense of responsibility in the school; it will have a wholesome effect upon the candidate and tend to make his school work more serious.

The short-cut candidates are, at the present time, a negligible quantity. The effect of discontinuing the August examinations will simply turn them to the examinations of the College Entrance Examination Board, a steadier, more impartial, and altogether more satisfactory test than our own entrance examinations. This Board will also furnish whatever supplement or alternative is needed to the recommendation system in irregular or special high school cases.

Statistics of the August entrance examinations of 1911 confirm the conclusions of the Committee. With a total entering class somewhat larger than in 1906, but 53 candidates presented themselves for entrance examinations; 34 of these have entered, but none wholly on examination. Twelve of these 34 had sufficient credit without further examination. Of the 19 not entering, 1 had sufficient units without examination but was kept out by the 500 limit, and 2 cases are still pending.

Forty of the 53 persons taking entrance examinations were presumably staking their admission on this throw. Of these 22 have been admitted, 16 rejected, and 2 are waiting for delayed credentials; 4 were candidates for admission as special students on the 5-unit plan; 2 succeeded and 2 failed. The 20 admitted in regular undergraduate standing were all high school graduates whose work in the high school had fallen below the fixed recommending grade in one or more subjects

and whose schools, for varying reasons, had not given full recommendations. But of these 20 only 14 actually met the test of examination. The other 6 were carried by the Committee in spite of deficiencies. In reality, then, (of candidates for regular standing) 14 succeeded and 20 failed.

Of the 20 admitted, 3 were from the Pasadena High School, 3 from Oahu College, 2 each from Palo Alto High School and Manzanita Hall, and 1 each from Stockton, Portland, Phoenix, Bakersfield, Santa Barbara, Duluth, Sacramento, and Lehi (Utah) High Schools, Occidental Academy, and the Manor School (Conn.).

The bearing of the proposed discontinuance of the August entrance examinations upon the 40 candidates submitting to the examination test would be about as follows:

In the case of the 20 admitted in regular undergraduate standing, with no examination test at Stanford, the high schools would have considered more carefully, and perhaps much earlier, the problem of recommendation. Some would have been recommended in full, some would have been refused full recommendation and a definite task prescribed. The candidate could still make trial of the College Entrance Examination Board in June; or failing this, could make his plans without the uncertainty, expense and delay of a journey to the University in August.

In the case of the 14 candidates rejected, it is possible that on further consideration by the high schools full recommendation in a few cases may have been granted. For the others it is possible that these tests had some educational value to the candidates. But these candidates were not material for whom special consideration should be made, and to some extent they were deflected by these tests from the proper channel of entrance preparation.

Examinations for sifting applicants for special standing have been of assistance to the Committee on Admission not particularly because of the results of these tests, but because so many of those looking for easy entrance have been frightened away by the existence of this test. Some good candidates have doubtless also been frightened away. The task of the Admissions Committee will be somewhat more difficult when the examination test is discontinued; but it is the conviction of the Committee that the gain in other directions will more than counterbalance this loss.

APPENDIX V

THE REPORT OF THE LIBRARIAN.

There were no large single purchases of books during the past year such as the Jarboe and Dudley collections acquired during 1910-11. Furthermore, a larger proportion of the orders, on account of the special appropriation for sets, are still outstanding. For these reasons the accessions for 1911-12 fall below those of last year. Following is the statement:

Volumes in Library August 1, 1911.....	162,432
Added by purchase.....	8,058
Added by gifts and exchange.....	1,795
Added by binding.....	3,035
	<hr/>
Total volumes added.....	12,888
Less volumes withdrawn.....	941
	<hr/>
Net increase.....	11,947
	<hr/>
Volumes at Stanford University July 31, 1912.....	174,379
Volumes in Lane Medical Library, San Francisco.....	31,422
	<hr/>
Total.....	205,801

The volumes withdrawn consisted largely of duplicate United States government publications which were returned to the Superintendent of Documents at Washington. The book fund subject to unit allotment was apportioned on virtually the same schedule which prevailed last year and which was printed in the President's Eighth Annual Report, therefore the apportionment is not here repeated. Of the volumes added by purchase, 732 were on the Syllabus fee account and 484 on the Law fee account. There were also added to the Law library 295 volumes by binding and 24 volumes by gift, making the total accessions to this department for the year 803 volumes.

Some of the more noteworthy purchases were: The Ellesmere Chaucer; Olschki's Monumental edition of Dante's *Divina Commedia*; Sabin's Dictionary of books relating to America; K. Akademie der Wissenschaften, Wien, *Sitzungsberichte*, and *Denkschriften*; Proceedings of the Philological Society of London; Publications of the Chaucer Society,

London; Bibliothèque de l'école pratique des hautes études; Revue des langues romanes; Revue critique d'histoire et de littérature; Journal de la Société de Statistique de Paris; Bibliothèque de l'école des chartes; Graefe's Archiv für ophthalmologie; Archives de neurologie; Archiv für hygiène; Vierteljahresschrift für öffentliche gesundheitsflege; Saccardo, Sylloge fungorum; Bulletin de la Société Royale de Botanique de Belgique; Bibliotheca botanica; Chemisches centralblatt; Indian engineering; Schweizerische bauzeitung; Journal de l'école polytechnique.

To Mr. Thomas Welton Stanford the Library is indebted for the generous gift of \$500 annually for a period of five years, to be expended for books on spiritism. From the Trustees of Cooper Medical College were received 411 volumes, being a part of the private library of the late Dr. Levi Cooper Lane. Mr. Herbert C. Hoover has increased our indebtedness to him by placing in the Library his collection of books on China and the Far East, numbering 326 volumes and 78 pamphlets. Mr. J. C. Cebrian gave a handsome work entitled "The history of the Spanish Christian architecture during the Middle Ages." President Jordan continues to be the source from which the Library derives many accessions. Timothy Hopkins and Horace Davis likewise are generous donors.

It becomes my duty to again report a regrettable number of resignations from the staff. Mr. Goodwin, the assistant librarian, resigned in January to assume the position of librarian of the University of Texas. Miss Rossiter, reference librarian, resigned in June to become librarian of Reed College, and Miss Thompson received a call to the Library of the University of Southern California. Miss Stinson resigned early in the year to be married, and the resignations of Miss Franklin, Miss Boulware and Miss Strachan followed at the end of the year from the same cause. Without counting student assistants, we are beginning the year with a staff of which one-third of the members are without previous experience in this library. Where experience counts for so much there must necessarily be a temporary loss of efficiency. The only compensating feature is the knowledge that members of our staff are held in such high esteem.

A considerable part of the work of the Library consists in acquiring needed material and making it available for use. What has been accomplished during the year is set forth in the following reports submitted to the librarian by those in charge of the respective library departments.

CLASSIFICATION.

Miss Hays, classifier, reports on the work of her department as follows: We have kept the current accessions and gift material up to date until June, and have done something in the struggle against back work since then. During August, 1911, some time was given to checking railroad material in aid of the proposed Bureau of Railway Economics checklist, and in December we arranged the H. R. L. unbound pamphlets. In

September the Dudley collection was finished, and in May the last of the Jarboe collection was sent through. In April we mounted our Bookplate collection and put it in shape for use, and began the monumental task of shelf-listing the British Sessional papers. This gradually developed into making a checklist as well, which will give a complete and consecutive record of the volumes of our set, however they may be bound, and whether complete or not. In this tremendous piece of work we were aided by some of the assistants at the Loan Desk during the Easter vacation and Miss Boulware and Miss Todd were very kind about giving their services whenever they were able. An extra assistant for the summer, Miss Burlingham, was appointed, and began her work May 21st. She has made one file of all of our Doctors' dissertations, comparing them with our Berlin cards, L. C. slips, and written slip catalogue, by no means a short or easy task. In addition she has been able to type lists as needed. The record of the books sent through is appended. It is not an exact measure of even the shelflist activity, for old cards are constantly re-written and cover slips made, but it is the best at command. In shelf-listing "Continuation" is considered a synonym for any added entry and includes extra copies, new editions as well as new volumes of sets and periodicals.

Month	NEW BOOKS		Continuations, incl. Bindery		OLD BOOKS		CHANGES		TOTAL	
	Titles	Vols.	Titles	Vols.	Titles	Vols.	Titles	Vols.	Titles	Vols.
Jul.	62	237	26	52	.....	.....	8	9	96	298
Aug.	360	755	198	269	.....	.....	4	6	562	1030
Sep.	438	549	129	354	48	65	23	63	638	1031
Oct.	329	614	252	379	44	55	32	43	657	1091
Nov.	496	665	217	362	47	64	6	11	766	1102
Dec.	263	347	62	77	31	41	52	66	408	531
Jan.	507	755	140	204	41	41	8	24	696	1024
Feb.	394	565	174	302	57	79	10	10	635	956
Mar.	438	722	324	720	47	99	11	22	820	1563
Apr.	356	600	145	194	51	61	6	13	558	868
May.	331	530	212	416	3	6	5	5	551	957
June ...	62	216	115	163	91	91	2	2	270	472
	4036	6555	1994	3492	460	602	167	274	6657	10923

CATALOGUE DEPARTMENT

Miss Sutliff, Chief Cataloguer, submits the following:

The usual bad luck has followed the Catalogue department during the year 1911-12. The first semester started out quite auspiciously in spite of the fact that we had lost one first class assistant, Miss Franklin, by promotion, and had two new ones who were without any adequate training. Before Thanksgiving, however, our good days were over and for four months, illness claimed different members of the department nearly all the time. In spite of this, a satisfactory amount of work was done, each member of the staff striving more than was right to keep abreast of the work. I am especially pleased to note that the Jarboe library of French revolution literature consisting of 1619 titles was catalogued, and duplicate cards prepared for a bulletin which will be printed, I hope, some time during the present university year. I cannot too highly commend Miss Hall and Miss Thompson for their work in this cataloguing. The books and pamphlets offered unusual difficulties to the cataloguer, and these young ladies spared themselves no trouble in their efforts to solve them. The other members of the staff assisted in this work a little, but on them devolved the duty of taking care of the new books as they came in. Since April, however, these have been allowed to accumulate to certain extent in order that the Jarboe books might be finished. Thus the first of August found us with many books on our hands that ordinarily would be included in the report of the year.

Report in Detail.

New books catalogued.....	11,805
Old books catalogued.....	850
Continuations from Bindery.....	1,748
	<hr/>
Total,	14,403
Recatalogued	890
Total number of new cards filed in the catalogue.....	44,580
L. C. cards.....	18,126
A. L. A. cards.....	1,900
Harvard cards	55

Besides these, 3460 cards have been typed and arranged for the Jarboe bulletin, and about 100,000 slips have been added to the Library of Congress catalogue.

I ought to add that about 4000 cards have been received from the Berlin Library and a like number from the Harvard Library. These have been arranged and half of them filed with the L. C. slips. About 1000 of these will be added to our library catalogue, representing books or dissertations in our collections.

SERIAL DEPARTMENT.

Miss Brooks of the Serial department reports:

During the year 1911-12 the Serial department has received regularly 1175 publications and 18 daily newspapers. Of the periodicals 968 are purchases, 79 are new this year and 207 are gifts or exchanges. During the summer of 1912 all the files of unbound serials have been thoroughly sorted and recorded and a complete list of all material in the department will soon be in one alphabet. The efficient working of the department has been somewhat hampered by a new personnel and a second change in the assistant. The binding for the year has been as follows:

Books bound	409	} at a cost of \$2226.89
Books rebound	175	
Serials bound	1592	
Law books	83	at a cost of 86.75

LOAN DESK.

Since Mr. Goodwin's departure in January the work of the Loan Desk has been under the supervision of Mr. C. V. Park. He submits the following statement of the use of books during the year:

August	1,770
September	17,937
October	19,201
November	17,587
December	11,553
January	9,594
February	16,876
March	16,157
April	13,547
May	7,464
June	862
July	526

Total,	133,074
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LANE MEDICAL LIBRARY.

Miss James, Medical librarian, reports additions to the Lane Medical Library as follows:

By purchase	365 volumes
By gift	466 volumes
By binding	965 volumes

Total,	1,796 volumes
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At the time of last year's report we were unable to make an accurate statement of the number of volumes in the Lane Library, for only about one-third of the books had been accessioned and much of the material consisted of unbound journals, many of which were incomplete. The numbering has been continued through all of the bound books, showing the contents of the library at the close of the year to aggregate 31,422 volumes. Allowing for the quantity of material still on hand in incomplete and unbound form the estimate last year of 35,000 volumes was not far from being correct. Additions have been made from time to time to the list of journals subscribed for, so that at present 239 are currently received. Of these 50 are American, 40 English, 57 French, 83 German and 9 various. Thirty-eight are devoted to the eye, ear and throat, being received on account of the Barkan Fund. Aside from the routine work a list has been prepared of the very considerable collection of duplicates, some of which have been sold while others have been transferred to the University Library at Stanford. A rough list also has been made of all books in the library other than periodicals for the purpose of ordering Library of Congress cards where available.

In the absence of an established exchange department the Library acts as the medium for the distribution of the University Series and for other publications sent to the libraries, learned societies and museums. During the year the following have been distributed:

Eighth annual report of the President of the University.

Register for 1911-12.

University Series:

Matzke memorial volume.

Boezinger: Das historische Präsens in der älteren deutschen Sprache.

Slonaker: The effect of a strictly vegetable diet on the spontaneous activity, the rate of growth, and the longevity of the Albino rat.

Searles: Catalogue de tous les livres de feu M. Chapelain.

During the year the library staff comprised George Thomas Clark, librarian; John Edward Goodwin, assistant librarian (resigned in January); Mary Jeannette Woodruff, stenographer; Alice Newman Hays, classifier; Helen Binniger Sutliff, chief cataloguer; Frances Sophia Courtenay James, medical librarian; Maida Rossiter, reference librarian; Charles V. Park, chief of loan desk (from January); May Franklin, chief of order department; Lucia May Brooks, chief of serial department; Elizabeth Hadden, cataloguer; Anna Gertrude Hall, cataloguer; Della Thompson, cataloguer; Jeannette Catherine Morgan, cataloguer; Laura Agnes Williamson, cataloguer; Mary Elvira Smith, assistant clas-

sifier; Lucretia Boulware, assistant in order department; Agnes Elizabeth Brown, assistant at loan desk; Walter Slack, assistant at loan desk (second semester); Harriet Hayes, assistant in serial department; Nina Strachan, reference assistant; Louise Ophüls, assistant in Lane Library; Jean Marcus, assistant in Lane Library (second semester); Hannah Lillian Todd, bindery assistant; Marguerite Brown, Thomas Lafayette Dyer, Talmadge Laughner Smith, Ollis Willard Newman, Joseph Paul Cottrell, LeRoy Edward Taylor, student assistants.

GEORGE THOMAS CLARK,
Librarian.

APPENDIX VI

APPOINTMENT SECRETARY.

During the year 1911-12 the total number of candidates registered for positions in the Office of the Appointment Secretary was 464. Of this number 107 were new registrations; 357 old (many with positions, but wishing to be transferred to more desirable ones).

The total number of requests for candidates (direct) was 348. Of this number 318 were for teaching and administrative positions; 30 were miscellaneous (social worker, stenographer, private secretary, bacteriologist, preceptress, solicitor, clerk, governess, matron, playground worker, janitor, and the like).

Full reports regarding appointments during the summer have not yet been made. Judging from previous years, when complete data are received, the number of appointments for the year will total 150 or 175.

The total number of requests for information concerning candidates from Teachers' Agencies was 56.

The total number of sets of credentials sent out regarding candidates was 528.

Requests for candidates have been received from California, Nevada, Arizona, Texas, Illinois, Washington, Oregon, Idaho, Colorado, Alaska, Hawaiian Islands, Philippine Islands, India (Calcutta) and South America.

The number of requests for men has been much larger in proportion to the number registered than for women. This is especially true in certain subjects—Mathematics, Physics, Chemistry, "General Science," Commercial Subjects and Manual Training.

There has been an increasing demand for teachers in Domestic Science and in Gymnastics and Athletics.

While in some subjects the number of candidates registered has considerably exceeded the demand, yet, as a rule, thoroughly trained, experienced candidates find little difficulty in securing desirable positions.

A large part of the time of the Appointment Secretary has been spent in consultation with students regarding vocations other than teaching and desirable combinations of subjects for high school work.

SUSAN BROWN BRISTOL,
Appointment Secretary.

APPENDIX VII

DEAN OF WOMEN.

The personal nature of the work of the Dean of Women allows but a part of it to appear in print.

All women entering the University for the first time were given personal interviews of the length necessary to assist them in the matters of room, board, and proper selection of University work. Twelve hours a week throughout the year were provided for consultations at the office, Room 203, and one afternoon and evening a week were devoted to students informally at home. Many hours have been given to student activities, to the establishment of student government, and to the working out of a plan for the management of Roble Hall, which plan was submitted by letter to the Board of Trustees. Considerable time has also been spent in investigating and regulating the conditions under which students are employed who are obliged to contribute to their support.

The problem of housing the women students has sometimes been acute. It has been the aim of the Dean of Women to reduce expenses upon the campus so as to enable as many as possible, preferably all those not living in their own homes, to reside in the neighborhood of the Quadrangle. In order to reduce expenses, coöperative clubs were formed at both 21 and 22 Lasuen Street, thus eliminating the profit of the boarding house keeper. When the new Delta Delta Delta Sorority house was completed, the third coöperative club secured the house vacated by that sorority and revived the old name of Mariposa. But all three of these clubs were obliged to hire from the first lessees of the University, paying exorbitant rents for the profit of those intermediate landlords under the guise of renting "furnished" houses. This abuse was finally terminated by the Business Manager of the University, who refused to renew such leases and leased directly to the coöperative clubs. As a result, more women are enabled to live upon the campus than ever before, and to live under better conditions; in fact, only those lived in Palo Alto who were engaged in remunerative work that necessitated their residence there.

A Student Loan Fund was established, the greater part of the work of raising the money being done by the Social Service Committee of the Young Women's Christian Association. The purpose was to loan small

sums to worthy young women at the discretion of the Dean of Women. Four students were so assisted last year.

Nothing has been so notable as the self-government of the women of the University. Under trying conditions at Roble Hall, it preserved order and maintained an ideal environment for study. The Women's Council has been willing to set standards and enforce discipline. Together with the Men's Council, they forbade the so-called dancing known as "ragging" which began to creep into University circles as it has into society at large. It is my belief that these Student Councils will keep unsullied the high standard of social life that exists at Stanford at the present time.

EVELYN WIGHT ALLAN,
Dean of Women.

APPENDIX VII

DEAN OF WOMEN.

The personal nature of the work of the Dean of Women allows but a part of it to appear in print.

All women entering the University for the first time were given personal interviews of the length necessary to assist them in the matters of room, board, and proper selection of University work. Twelve hours a week throughout the year were provided for consultations at the office, Room 203, and one afternoon and evening a week were devoted to students informally at home. Many hours have been given to student activities, to the establishment of student government, and to the working out of a plan for the management of Roble Hall, which plan was submitted by letter to the Board of Trustees. Considerable time has also been spent in investigating and regulating the conditions under which students are employed who are obliged to contribute to their support.

The problem of housing the women students has sometimes been acute. It has been the aim of the Dean of Women to reduce expenses upon the campus so as to enable as many as possible, preferably all those not living in their own homes, to reside in the neighborhood of the Quadrangle. In order to reduce expenses, coöperative clubs were formed at both 21 and 22 Lasuen Street, thus eliminating the profit of the boarding house keeper. When the new Delta Delta Delta Sorority house was completed, the third coöperative club secured the house vacated by that sorority and revived the old name of Mariposa. But all three of these clubs were obliged to hire from the first lessees of the University, paying exorbitant rents for the profit of those intermediate landlords under the guise of renting "furnished" houses. This abuse was finally terminated by the Business Manager of the University, who refused to renew such leases and leased directly to the coöperative clubs. As a result, more women are enabled to live upon the campus than ever before, and to live under better conditions; in fact, only those lived in Palo Alto who were engaged in remunerative work that necessitated their residence there.

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sums to worthy young women at the discretion of the Dean of Women. Four students were so assisted last year.

Nothing has been so notable as the self-government of the women of the University. Under trying conditions at Roble Hall, it preserved order and maintained an ideal environment for study. The Women's Council has been willing to set standards and enforce discipline. Together with the Men's Council, they forbade the so-called dancing known as "ragging" which began to creep into University circles as it has into society at large. It is my belief that these Student Councils will keep unsullied the high standard of social life that exists at Stanford at the present time.

EVELYN WIGHT ALLAN,
Dean of Women.

APPENDIX VIII

STUDENT ADVISER.

The University Conference, an organization of upper classmen, in coöperation with the Faculty Student Affairs Committee and the Student Adviser has during the past three years been working out a system of student control. Through this organization the student body has been gradually assuming a greater degree of responsibility in matters of discipline and other matters of more general student interest. This work has been carried on for the purpose of training students in self-government and with the object of ultimately assuming complete control in such matters. During the spring semester the men of the University by a large majority voted to assume full responsibility in all matters of discipline and with the sanction of the President and the Faculty Student Affairs Committee complete student self-government was instituted. Under the system adopted a committee of five upper classmen chosen by the University Conference has assumed the duties and functions formerly exercised by the Faculty Committee on Student Affairs. Its decisions and recommendations must be approved by the President and the chairman of the faculty committee before they become effective.

Much time has been given by the Student Adviser to the development of this system of student control and to association with students in their various student activities.

Reports have been sent to parents who have inquired concerning the deportment and general progress of their sons.

Three hours daily have been given to personal consultation with students. Men who have fallen below the required scholarship standards have been interviewed with the object of discovering the reasons for their delinquencies and an effort has been made to assist such men in obtaining proper ideals of University work.

Conditions of student life are at a very high standard and the character and ability of the present leaders in the various lines of student activities insure a continuation of these conditions.

ALMON EUGENE ROTH,
Student Adviser.

APPENDIX IX

THE MEMORIAL CHURCH.

Matriculation.

A copy of the following letter was addressed to each Freshman entering the University:

Stanford University, Cal., September 1st, 1911.

To the Members of the Class of 1915:

As Chaplain of the University, I welcome you to a share in our religious life. We hope that the Memorial Church will soon be rebuilt; meanwhile religious services are held as follows:

Daily at 8 a. m., in the vestry of the Church, a simple devotional service, lasting fifteen minutes; students taking their part by reading the lessons and saying the prayers.

On Sunday at 11 a. m., in the old chapel, with sermons on alternate Sundays by distinguished preachers from various churches.

These services are undenominational in character, and attendance at college chapel will not interfere with your own church membership.

A matriculation service for Freshmen will be held in the chapel next Sunday, September 3rd, at 11 a. m. I trust you will be present.

In entering upon this strange and somewhat exciting life, I beg you be true to the moral principles and religious habits of your youth. Let nothing hinder your Christian life. Character is the supreme ideal of education, and religion is the most potent factor in character development. University life has its own temptations, its own hindrances; therefore, I say to you, Ally yourselves with every force in the University which makes for purity and godliness of living.

If at any time I can be of service to you, come, and I will gladly help or advise you. I keep office hours in the vestry daily, except Monday, from 9 to 12.

Praying God's blessing upon your new life, I am,
Sincerely yours,

D. CHARLES GARDNER.

At the Matriculation Service, Dr. Branner, Acting President, was present and appropriate addresses were made by the Chaplain and Student Adviser.

Chapel Services.

One hundred and sixty-eight services of Public Worship have been held during the year, with a total attendance of 9245.

On Sundays, first semester.....	4340	
Average, 289.		
On Sundays, second semester.....	2970	
Average, 198.		
Daily Chapel, first semester.....	871	
Average, 14.		
Daily Chapel, second semester.....	1064	9245
Average, 15.		
Baccalaureate Sunday.....	1700	

The attendance at the Daily Chapel service shows a gain of 323 for the year, and the Sunday Service a gain of 1767. The Chaplain preached on alternate Sunday mornings throughout the year, and made an address at the Daily Chapel service.

Acting under the authority of the Board of Trustees, the Chaplain invited the following named clergymen of various denominations to preach on alternate Sunday mornings:

First Semester.

- Hebrew—Rabbi Meyer, San Francisco.
- Presbyterian—Rev. Robert Freeman, Pasadena.
- Unitarian—Rev. Bradford Leavitt, San Francisco.
- Methodist—Bishop Hughes, San Francisco.
- Dr. Hays, Chicago.
- Episcopalian—Bishop Nichols, San Francisco.
- Rev. C. F. Blaisdell, Redlands.

Second Semester.

- Baptist—Rev. R. M. Vaughan, Berkeley.
- Congregational—Rev. A. W. Palmer, Oakland.
- Episcopalian—Dr. Clampett, San Francisco.
- Presbyterian—Dr. Day, San Anselmo.
- Methodist—Rev. W. C. Evans, San Francisco.
- Dr. Charles D. Hurry, New York.
- Unitarian—Dean Wilbur, Berkeley.

Teaching.

The Chaplain has given a course of lectures in the Department of Biblical Literature and History on the life and teaching of Jesus.

For voluntary groups of students and others he has given courses of

instruction in (1) St. Mark's Gospel, (2) St. Luke's Gospel, (3) Moral Philosophy.

Gradually we are building up a library in Biblical Literature, Ethics, Christian Philosophy and Apologetics. One function of the Chaplain is to guide students in their reading in these and kindred subjects.

Pastoral Work.

The most important part of the Chaplain's function is pastoral, and therefore private. Such work cannot be tabulated. I try to meet each freshman. I keep office hours, daily, except Monday, from 8:30 to 12; visit sororities and fraternities socially, and make addresses on morals and manners; call on students in halls and lodgings; care for sick and poor students; visit all students in hospital, and act as adviser to individuals and associations.

D. CHARLES GARDNER,
Chaplain.

APPENDIX X

LELAND STANFORD JUNIOR MUSEUM.

I have the honor to submit the following report upon the condition and operations of the Leland Stanford Junior Museum during the year ending July 31st, 1912.

The greater part of the work was confined to the care of the buildings and the collections, economical considerations having reduced the working force to the least possible number.

But few changes have been made within the past year, it being considered best to retain the present temporary installation of material until more definite plans for its future arrangement could be made.

The attendance during the year was exceptionally good, including many noted visitors from eastern and foreign points. School classes from many towns along the Peninsula repeatedly visited the Museum. They were accompanied by their teachers and instructors. Usually half the day would be devoted to seeing the exhibits, the other half being spent in looking through the University buildings.

A number of donations were made, including a collection of Japanese armor by Drs. Geo. W. and C. T. Rodolph, of Oakland. This collection contained some very unique as well as rare specimens.

HARRY C. PETERSON,
Curator.

APPENDIX XI

PUBLICATIONS OF THE FACULTY, 1911-12.

DAVID STARR JORDAN:

Bankers as peace guardians: *World To-Day*, vol. 21, February, 1912.
Concerning Sea-Power: (World Peace Foundation, Pamphlet series, January, 1912, no. 4, pt. 1.)

Idem: *The Independent*, vol. 71, July 6, 1911.

Confessions of a peace maker: *Friends' Intelligencer*, 20 Jan. 1912.

Descriptions of two new species of fishes from Honolulu, Hawaii: *U. S. National Museum Proceedings*, vol. 42, August, 1912.

Eric's book of beasts, done in water colors and accompanied with appropriate jingles; interpreted in black and white by Shimada Sekko. San Francisco, Elder, 1912.

Foreclosing the mortgage on war: *World's Work*; vol. 24, June, 1912.

The fur seals and their enemies (with G. A. Clark): *Review of Reviews*, vol. 45, March, 1912.

Great scientists' indictment of American universities: *Current Literature*, vol. 52, January, 1912.

A half century of Darwinism: *Science*, vol. 30, 15 Oct., 1909.

The heredity of Richard Roe; a discussion of the principles of eugenics. Boston, American Unitarian Association, 1912.

Japan and the United States: *Sunset*, vol. 28, January, 1912.

Idem: *Japan Weekly Mail*, vol. 57, no. 6, Supplement, February 10, 1912.

Japan's task in Korea: *Review of Reviews*, vol. 46, July, 1912.

Knowing real men. San Francisco, Whitaker & Ray-Wiggin Co., 1911.

Kokumin no Kotto (Blood of the Nation): Tokyo.

Krieg und Mannheit: Internationale Verständigung, Heft. 5, Berlin, 1912.

The material waste of war: *Sierra Educational News*, vol. 7, August, 1911.

Idem: *Altrurian*, vol. 1, October, 1911.

La Moisson Humaine. Traduit de l'Anglais par A. L. Guérard, Paris, 1911.

Moral training of college students. (Synopsis: *Proceedings of the National Education Association*, 1911.

- Practical education. San Francisco, Whitaker & Ray-Wiggin Co., 1911.
- Relations of Japan and the United States: *Journal of Race Development*, vol. 2, January, 1912.
- Idem: *Popular Science Monthly*, vol. 80, January, 1912.
- Review of sciænoid fishes of Japan (with W. F. Thompson): *Proceedings of the National Museum*, vol. 39, 1911.
- Review of Sparidæ and related families of perch-like fishes found in waters of Japan (with W. F. Thompson): *Proceedings of the U. S. National Museum*, vol. 41, January, 1912.
- Robben und ihre beschützung (with G. A. Clark). Verhandlungen des VIII Internationalen Zoologen-Kongresses zu Graz, 1912.
- Saving of time. San Francisco, Whitaker & Ray-Wiggin Co., 1911.
- Syllabus of lectures on International Conciliation given at Stanford. Printed for class use January, 1912. Published by World Peace Foundation. Boston, 1912.
- Temperance and society: *Proceedings of the National Education Association*, 1911.
- Three counts against tobacco: *Prophylaxis*, 1, August, 1912.
- Unseen empire. Boston. American Unitarian Association, 1912.
- Idem: *Mid Pacific Magazine*, vol. 2, December, 1911.
- William Russell Dudley: *Science*, n. s. vol. 34, 4 August, 1911.

GEORGE ARCHIBALD CLARK:

- Commercial subjects in high schools: *Sierra Educational News*, vol. 7, September, 1911.
- The fur seals and their enemies (with D. S. Jordan): *Review of Reviews*, vol. 45, March, 1912.
- Pribilof fur seal herd: *Science*, n. s., vol. 35, March 1, 1912.
- Report of the seal commission: *ibid.*, vol. 35, April 5, 1912.
- Report on fur seal herd, 1909: *House Document No. 93, 62d Congress, First Session*, pp. 829-897.
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Opportunities for literary training in the study of modern languages: *National Education Association Proceedings*, 1911.

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WILLIAM DINSMORE BRIGGS:

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26 Articles on state school systems and state school administration: *Monroe's Cyclopedia of Education*, vol. II, 1911.

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Results and impressions of a preliminary study of pedagogical retardation: *Proceedings of the National Education Association*, 1911.

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Extra-classroom activities in high school; their place and their importance: *Proceedings of the National Education Association*, 1911.

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